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Why farmers change:

Ideas from soil management shifts around the world

Written by:

Tom Scrope NSch

August 2025

A NUFFIELD FARMING SCHOLARSHIPS REPORT

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Date of report: August 2025

NUFFIELD Farming Scholarships

"Leading positive change in agriculture. Inspiring passion and potential in people."

Title	Why Farmers Change: Ideas from soil management shifts around the world
Scholar	Tom Scrope
Sponsor	Yorkshire Agricultural Society
Objectives of Study Tour	To explore how the adoption of better farm practices can be accelerated – particularly looking into changes in soil management practices. The aim was to understand what motivates farmers to make changes, how advice is best delivered, what funding models work, and how to overcome practical and institutional barriers.
Countries Visited	• Brazil • Netherlands • Germany • Denmark • Norway • Argentina • Chile • Australia • UK
Messages	• There are three key steps for a farmer to change: Motivate, Advise, Fund. Monitoring supports all three. • Motivation comes first and is most important, with six key motivators identified in my report. • Farmer groups are the most effective way to deliver trusted, practical advice. They should be scaled up. • Sustainable Farming Incentive (SFI) is a world leading funding scheme, and should be refined, not overhauled. Water company funding is also helpful, but carbon markets are still immature. • The future of agronomy is providing more holistic advice and support, not just recommending inputs. • Monitoring is not just for compliance or carbon credits - it should motivate and drive benchmarking.

EXECUTIVE SUMMARY

This report explores how to drive the adoption of better farm practices, particularly focusing on soil management. Over the past 18 months, I have travelled 6,616 miles across Europe, Australia and South America to learn from farmers, advisors, researchers and policymakers what drives changes in farmer behaviour.

I began my travels assuming better knowledge sharing was the key. But I've come to believe that change (to any farm practice) depends on three key steps:

1. Motivate: The first and most important step is giving farmers a reason to care — the motivation to embrace change, with all the learning and disruption that involves. Across my travels, six common motivators stood out:

- **External crisis** — drought or price shocks forcing change
- **Personal crisis** — succession or health issues prompting re-evaluation
- **Charismatic educators** — who spark curiosity and mindset shifts
- **Community** — being part of an engaged sub-sector of the industry, often facing external criticism
- **Benchmarking** — seeing what others are doing better and wanting to catch up
- **'Grazing for Profit'** — an immersive course helping farmers step back and rethink their business from the ground up

2. Advise: Once motivated, farmers need help knowing what to do. The closest thing to a silver-bullet I saw were well-run **farmer groups**. The report covers many funding routes. Effective ones let farmers' priorities lead (not funder goals), and trust facilitators to deliver without burdensome bureaucracy. **Facilitator quality and capacity is the biggest determinant of success** – funders, don't penny pinch! Groups should be connected nationally. Farm advisors also have a critical role – the future of agronomy lies in providing holistic advice, not just recommending inputs.

3. Fund: Soil-friendly practices often cut costs in the long run — but they can carry upfront risk. England's Sustainable Farming Incentive **(SFI) is a world-leading scheme**, with high uptake driven by flexibility and credible payments. It should be refined, not overhauled. **Water companies** offer the readiest source of private funding, while carbon markets remain immature. **Landlords** should support soil improvements on the one-third of English farmland that is rented through preferential tenancy agreements.

Monitoring change reinforces these three steps:

- it motivates by showing progress and enabling benchmarking.
- it unlocks learning and knowledge of what works on a particular farm.
- it can shape future government funding schemes, plus supports credits.

In every climate and soil type I visited, pioneering farmers have already shown what good soil management looks like. I hope this report can contribute towards building a system that supports many more to follow their lead.

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DISCLAIMER

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All photos are the author's own unless otherwise stated.

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CHAPTER 1: PERSONAL INTRODUCTION

The author, Tom Scrope

After qualifying as an accountant at KPMG, I wanted to escape the London rat-race and do something more meaningful. Having grown up around farming in North Yorkshire, agriculture felt familiar. I joined a company selling bio-fertilisers, became increasingly obsessed with soils, but doubted that biological products were the answer. I started asking: how do we actually improve soil management at scale?

That question led to co-founding Soil Benchmark with Dr Ben Butler, a soil scientist and software developer I met through the British Society of Soil Science. Our early ideas were vague and generated little traction. After a few months we realised agronomists, not farmers, were our key market. The real turning point came when DEFRA launched the Sustainable Farming Incentive (SFI23), offering payments for detailed Soil Management Plans. We refocused, built a platform to automate those plans, and launched in November 2023.

Eighteen months on, we're used on over 11% of England's farmland, have turned a profit, and raised funding to expand into manure and nutrient management plans, and soon crop protection recommendations. As we grow into a comprehensive farm software package, our mission remains to improve soil management, at scale.

CHAPTER 2: BACKGROUND TO MY STUDY SUBJECT

We set up Soil Benchmark to help improve soil management, but it quickly became clear that software alone wasn't enough. I applied for a Nuffield to explore what else was driving improvements in soil management.

My starting point was that soils are complex, and while some farmers have, through years of trial and error, learned how to combine good soil management with profitable production, the main barrier seemed to be poor knowledge exchange. I wanted to see examples where knowledge was flowing effectively from leading farmers to others.

As I travelled, it became clear that better soil management depended on more than just good knowledge exchange. Just before my first solo trip, I was talking with Nick Marriner, a farmer cluster facilitator from the Chilterns. He summarised it as five key requirements for change – a framework that has shaped this report.

1. **Motivate**: most important - a farmer must *want* to change. Across my travels I saw six common triggers for changing soil management.
2. **Advise**: practical, trusted guidance is key. Farmer groups are particularly effective; I also explore other sources of knowledge.
3. **Fund**: transition costs need funding on most farms. I explore public schemes, private finance, and landlord incentives.
4. **Fix**: removing the practical roadblocks to change.
5. **Monitor**: not just for compliance or natural capital, but to motivate further progress and learn what's working.

That list proved a useful framing, but I came to see the first three steps - **Motivate, Advise, Fund** - as the most essential. Fix is helpful, but more about smoothing the path of changes that would happen anyway. And Monitoring really feeds into the others: it motivates by showing progress and enabling benchmarking; it improves advice through trials and learning; and it supports funding - not only for natural capital payments but also shaping and justifying funding schemes like SFI.

I also came to realise that **these principles apply beyond soil management to any farm practice change**. The Recommendations chapter offers takeaways for farmers, policymakers, advisors and agricultural societies.

On which note, thank you to the Yorkshire Agricultural Society (YAS) for generously sponsoring my Nuffield. These Societies (and Nuffield) were founded to spread best practice, so YAS was a fitting sponsor.

CHAPTER 3: MY STUDY TOUR

Four big trips, plus many UK visits:

March 2024: Mato Grosso do Sul, Brazil

Three weeks in SW Brazil for our Contemporary Scholars Conference (CSC).

June 2024: Netherlands > Germany > Denmark > Norway

Two-week road trip through Northern Europe. (Alongside Nuffield visits, it involved delivering a taxidermy salmon back to Norway; there's a good story!)

December 2024: Argentina > Chile

Actually my honeymoon but included as some useful Nuffield ideas from a few of our visits.

February/March 2025: Australia

Five weeks starting in Queensland, then Perth GRDC Updates, Adelaide, a two-week road trip across Victoria and up New South Wales (NSW), before a final few days back in Western Australia (WA).

CHAPTER 4: MOTIVATE

If a farmer doesn't actively want to make a change to how they manage their soils, nothing else matters. **Motivating** them really is the most important of the three steps.

The six common examples of motivators I saw were:

1. External crisis
2. Personal crisis
3. Charismatic educators
4. Community
5. Benchmarking
6. 'Grazing for Profit'

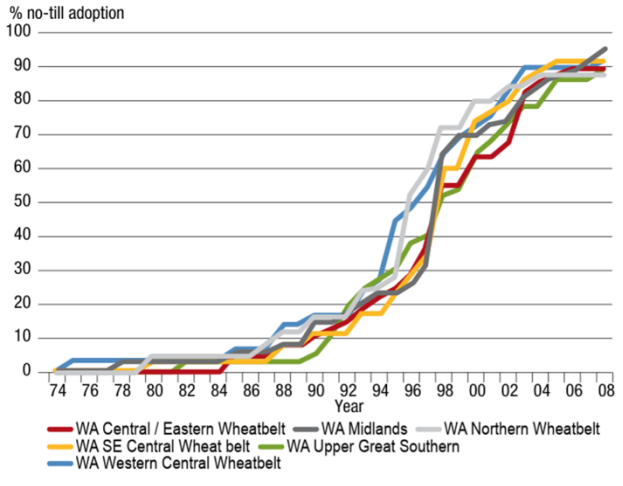
The first two strike randomly. But my final recommendations include ideas to encourage the others.

Some noted regulation as a motivator. But while it might force behaviours, I rarely saw it changing mindsets – particularly important for soils. For instance, overwinter closed periods for manure spreading don't seem to have made many farmers start seeing slurry as a resource rather than waste.

4.1 External Crisis

In Australia, I heard repeatedly that drought forced farmers to confront the limits of existing soil management. A key example was the Western Australia No-Till Farming Association (WANTFA). Formed in the early 90s, they facilitated the rapid adoption of no-till in WA (Fig. 1).

Fig. 1 – rapid adoption of no-till in Western Australia in the late 1990's – driven by drought and wind erosion
from Llewellyn, R.S., D'Emden, F.H., 2010. Extensive use of no-tillage in grain growing regions of Australia. GRDC. https://t.ly/eZ5MY



I was expecting their CEO Amanda (Fig. 2) to credit this shift to WANTFA's knowledge exchange work, and that was part of it. But she stressed the big 'trigger' was the 1994 drought (Fig. 3) and the wind erosion and moisture loss it caused.


Fig. 2 – breakfast with Amanda Abou-Rjeily of WANTFA

With no subsidies to soften the blow, farmers were desperate. Many tried min-till out of necessity, and when it worked, word spread. They turned to WANTFA to learn how to implement no-till in their context.

Those that didn't adapt went out of business. The no-till surge in the graph (Fig. 1) therefore also reflects natural selection.

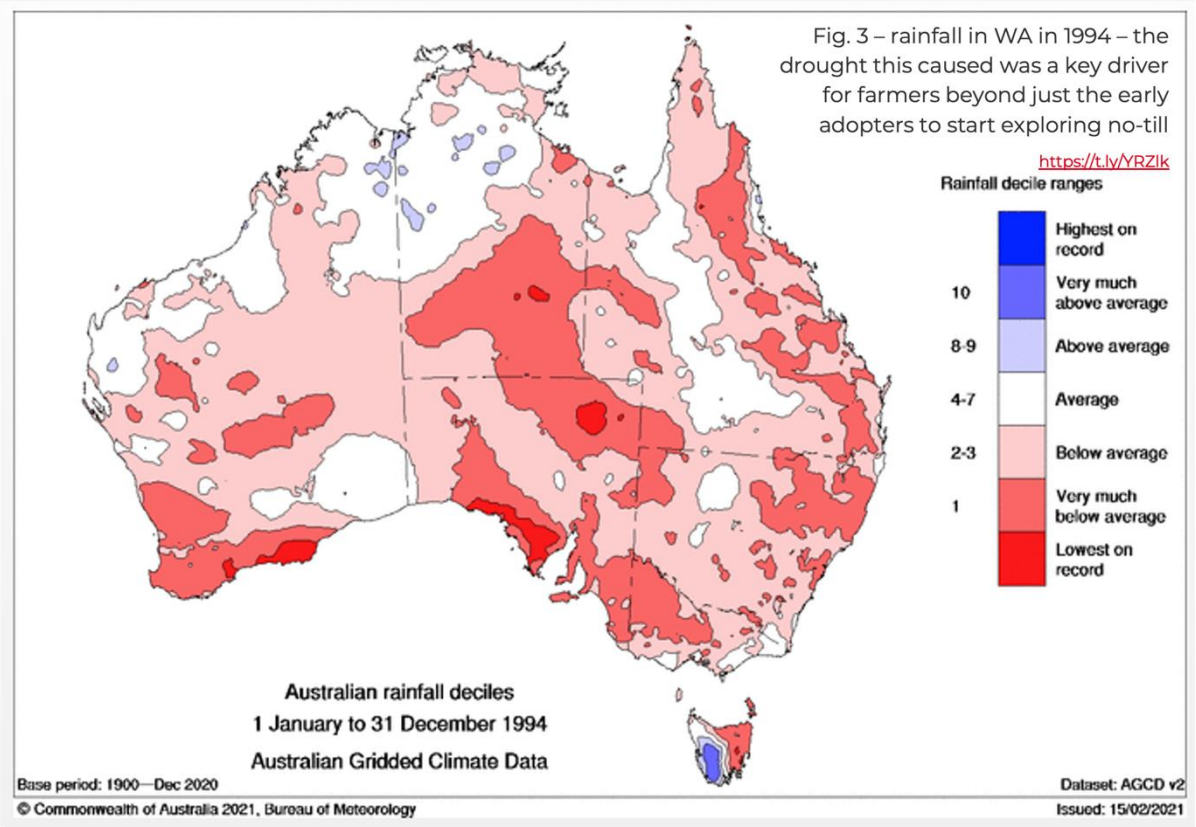


Fig. 3 – rainfall in WA in 1994 – the drought this caused was a key driver for farmers beyond just the early adopters to start exploring no-till

https://t.ly/YRZIk

A comparatively mild climate, and more forgiving soils mean the average UK farmer won't face such an ecological crisis point. Economic shocks may provide our 'crisis'. Could the loss of Basic Payments combined with removal of Agricultural Property Relief (Fig. 4) be our 'drought'?


Fig. 4 – my view of the IHT protest in London, November 2024

In the Netherlands, the 'crisis' was the increasing unviability of traditional input-driven systems. With more products being withdrawn and resistance rising, the status quo wasn't an option. Agronomist Jan Pieter Bijnagte described a growing interest in soils because "*the toolbox is emptier than it was ten years ago*."

4.2 Personal Crisis

Sometimes the trigger was deeply personal: cancer; succession; divorce. Each case differed, but the common thread was a desire to farm differently, with lower overheads and less environmental impact, often with the next generation in mind.

In both Holland and Australia, I met farmers who linked health scares to chemical inputs and began reducing them. For others, an accident or illness meant they

wanted to reduce time-consuming operations like tillage to spend more time with family. Improving soils was a happy side-effect.

Tim Parton has spoken powerfully about how his depression and recovery through better nutrition sparked a new farming approach. He now focuses on optimising plant nutrition to reduce susceptibility to disease and pest pressure. Soil health is central to that.

4.3 Charismatic educators

A more positive motivator I heard across Australia, Europe, and the UK were inspiring individuals. Many farmers described encountering Gabe Brown (through his book *Dirt to Soil* or a local talk) as a turning point. It didn't provide all the answers but did spark a mindset shift that led them to experiment and adapt his principles locally. Other names mentioned often included Elaine Ingham, the late Stan Parsons, Allan Savory, Joel Salatin, Joel Williams (Fig. 5), John Kempf, and Nicole Masters. Notably, none are British. What can we do to find, support and 'launch' homegrown 'charismatic educators'? Perhaps some are already hidden in the Nuffield network.

Fig. 5 – Joel Williams speaking at the Namoi Soil Symposium, Northern NSW. March 2025.

Fig. 6 – with my Soil Benchmark co-founder, Dr Ben Butler, at Groundswell

These educators are not only knowledgeable but gifted storytellers. Many speak regularly in the UK. Events like Groundswell (Fig. 6) allow many more farmers to hear them. After John Kempf's packed 2024 talks on reducing pesticide use through better nutrition, several farmers told me it had been a lightbulb moment. Levy bodies in Australia regularly fund high-profile speakers coming to big events, and in my view their fees remain excellent value. Should AHDB copy this approach?

4.4 Community

Groundswell is a powerful example of another motivating force: community. Many across Europe and Australia were envious. Like *No Till on the Plains* in America, Groundswell gives attendees a boost of motivation, alongside practical knowledge.

Fig. 7 – Andrew Watson in one of his cotton fields

In Australia, a similar sense of community was strong in specific sectors like cotton and feedlots, which were regularly cited as leaders in soil management innovation. Cotton growers Andrew Watson NSch and his father John explained why (Figs. 7 and 8).

John was one of the first cotton growers in NSW's Namoi valley in 1979. Because early adopters were consciously learning from American growers, they had to be open minded. There was no 'grandfather's way' to follow. The industry remains populated by a small number of large growers, and that 'improving mentality', as historian Anton Howes calls it[1], persists. Andrew noted that when a farmer begins growing cotton, they carry the mindset into existing enterprises like cereals.


Fig. 8 – With Andrew's father John, in front of one of the Nuffield tractors at the fantastic Boggabri Tractor Shed – https://t.ly/bn7we

A key anchor for this 'sub-culture' is the annual Cotton Conference[2]. It's on the Gold Coast and has a free crèche on site, so families join (perhaps an idea for the Nuffield Conference?). It's both a social and knowledge sharing gathering for the whole industry (having relatively few, large growers helps). The combination means trying new ideas becomes a social norm.


Fig. 9 – Andrew Slack (Ops Manager, Rangers Valley Feedlot, NSW - centre)

The feedlot industry is similar. As Andrew Slack at Rangers Valley (Fig. 9) explained, the sector's small number (400) of large operators helps. As with cotton, feedlots have come under a lot of criticism (environmental for cotton; animal welfare for feedlots). This has fostered an 'us against the world' mentality, driving collaboration and knowledge sharing, which means innovation becomes normal.

4.5 Benchmarking

Benchmarking was widespread in Australia. Most farms I visited were part of a group, usually run by their farm business consultant. Examples included AgriPath[3], PlanFarm[4], Farmanco[5], Agrista[6], Pinion[7] and Aggregate[8]. It's a standard part of farm business culture. Annual winter meetings reviewing last season's performance were a key date in the calendar.

At Alex and Shannen Davies NSch's farm near York, WA (Fig. 10), PlanFarm's benchmarking helped them see where they were outperforming or falling behind. In Alex's words, it showed where they were "*leaving money on the table*." They'd then dig into why with their agronomist.

Fig. 10 – back in a slightly warmer York-shire

[1] https://www.antonhowes.com/
[2] https://australiancottonconference.com.au/
[3] https://www.agripath.com.au
[4] https://planfarm.com.au
[5] https://www.farmanco.com.au
[6] https://www.agrista.com.au
[7] https://www.pinionadvisory.com
[8] https://aggregateag.com.au


Fig. 11 – in the beautiful garden of Cec and Graeme McConnell in the hills above Perth

Speaking to PlanFarm's MD Graeme McConnell (over a BBQ just before my flight home - Fig. 11) and to AgriPath analyst Alastair Scott in Tamworth, NSW, six key features emerged that made these groups work:

- **Minimal data entry:** existing farm consultants already had access to figures in AgWorld (Aussie Gatekeeper) and Xero, reducing friction.
- **Consultants clean the data:** standardising figures like depreciation, filling gaps, sense-checking accuracy (e.g. checking the new truck in the yard appears in the figures).
- **Motivating headline metrics:** $/ha/mm of rainfall was common. It catches attention and focuses discussion.
- **Clear ranking:** farms were shown against the mean, top 25%, and bottom 25%, overall and by cost category.
- **Farmers pay to participate:** covering consultant time and increasing buy-in.
- **Fixed group membership:** typically 15–25 farms, allows trust to build. Some keep figures anonymous, in others everyone identifies which are their figures. Both approaches can work. Openness led to richer discussion, but anonymity built trust where members competed for land.

The UK does have benchmarking: AHDB's Farmbench, discussion groups, or consultants like Gary Markham[9]. But it seems less influential than in Australia. Why? Farmbench, for instance, lacks most of the six points above as it isn't embedded within tight-knit, consultant-led peer groups that build trust over time.

Could large UK consultancies (Brown & Co, Ceres Rural etc.) do better? They have access to client data and could build a high-value service that drives change. And as Graeme and Gary noted, while benchmarking may not be the most profitable service, it's one of the stickiest. Once farmers join a group, they rarely want to leave it - or the consultancy who runs it.

Benchmarking — whether against peers or your own past performance — only works if farms are recording key cost of production metrics. This kind of monitoring is often overlooked in soil discussions, which tend to focus on soil carbon testing. But tracking something as simple as fertiliser spend per hectare — and comparing it to yield or neighbours — is far more likely to drive change than chasing a carbon credit that may never materialise.

[9] https://www.landfamilybusiness.co.uk/gross-margin-accounts-benchmarking

4.6 Grazing for Profit

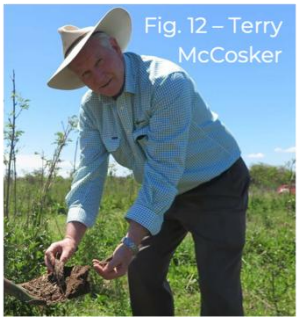


Fig. 12 – Terry McCosker

While benchmarking was a key motivator for arable farms, on livestock businesses the course that came up repeatedly was '*Grazing for Profit*' (GfP). Over 7,000 Australian farmers have completed it. Terry McCosker (Fig. 12) developed the course. He shared his story when we met in Brisbane.

GfP is an intensive six-day residential course, focused not just on grazing techniques, but on rethinking the whole farm business. Although cell grazing (a.k.a. mob grazing) underpins the model, as Terry emphasised, grazing is not the first topic to tackle. Mindset, business goals, and succession come first. It's also not just the content, but the delivery: a full-immersion, structured week run by facilitators who are themselves former participants. Spouses attending helps avoid slipping back into old habits when returning home.

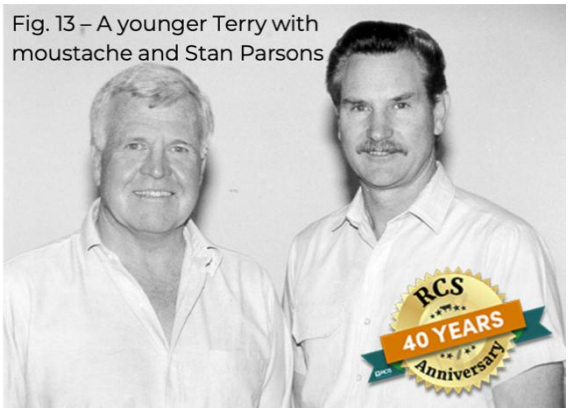


Fig. 13 – A younger Terry with moustache and Stan Parsons

The course draws on the work of Allan Savory and Stan Parsons, who developed cell grazing frameworks in 1960s Rhodesia. Parsons later created the well-known '*Ranching for Profit*' course in the US, which GfP is based on. Terry encountered and started applying their principles while working in the Northern Territory in the mid-1980s. A Churchill Fellowship in 1991 allowed him to explore them further across the US and Africa (Fig. 13). On his return he founded Resource Consulting Services[10], developing GfP by tailoring the model to Australian conditions.

GfP is designed to kick-start a process, not deliver a one-off fix. RCS runs an alumni programme, Executive Link, where small groups of farmers meet three times a year (discussed in Chapter 5). For many who didn't enjoy school, GfP shows learning can be practical, empowering, and even enjoyable.


Fig. 14 – with 'Mossy' at his farm by Toowoomba

Agronomist Ian Moss (Fig. 14) helps deliver GfP and noted the strong community around it. Graduates often describe a 'club' (some a 'cult'). Nuffield is similar. Such 'tribes' can be powerful motivators but need to avoid negativity to those outside. 'Regen' was a dirty word for many in Australia because leading 'regen' farmers are perceived as having built their profile by

[10] https://www.rcsaustralia.com.au/

casting conventional farmers as evil. In galvanising the committed few, they've alienated many more.

GfP attendance is partly subsidised by Australian state governments, recognising the benefits to farm resilience and land management. Encouragingly, AHDB's *Roots to Resilience*[11] programme has brought Dallas Mount (who now leads *Ranching for Profit*) to the UK. This should be scaled up, ideally with UK-based facilitators trained through the US or Australian programmes. Perhaps SFI could fund attendance?

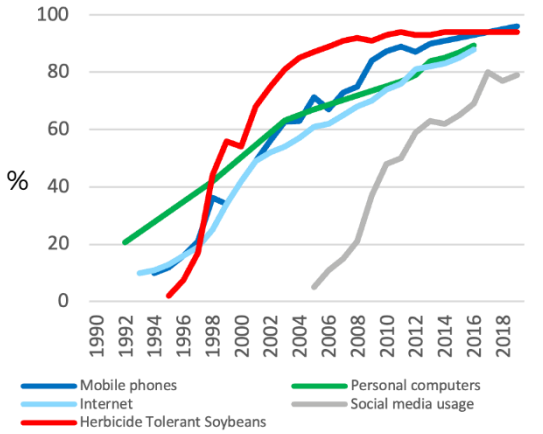
[11] https://ahdb.org.uk/take-control-of-your-farm-s-future-with-roots-to-resilience

CHAPTER 5: ADVISE

Once motivated, farmers need advice: practical knowledge, relevant to their context. Moving to a more soils-focused approach is particularly knowledge-intensive.

Historically, advice came from government services like ADAS, or from suppliers selling products. For instance, Monsanto's Roundup Ready (RR) soybeans worked especially well in no-till systems, so sales reps effectively became no-till extension agents. As adoption of RR soy rocketed (Fig. 15), no-till followed on its coattails[12].

Fig. 15 – Adoption of Monsanto's Roundup Ready Soy was faster than mobiles, computers, internet or social media. Sources: Our World in Data & USDA



But, aside from glyphosate, many of the soil management changes now needed involve fewer inputs, so there's less commercial support. And since the 1980s government advisory services have been cut globally.

Alternatives have emerged. This diversity is good: different farmers learn in different ways. Below are the most effective models I saw.

5.1 Farmer Groups

Farmer groups aren't a new idea in the UK. There's an established patchwork of discussion groups, clusters, and catchment partnerships — many doing excellent work on soil health.[13]

But after speaking to facilitators and members across the UK, it feels we're not realising their full potential. Facilitators like Kate Mayne in Shropshire (Fig. 16), Belinda Bown in Kent, and Jenny Phelps in Gloucestershire all described the same challenge: groups are often run by overstretched, underpaid advisors with just enough time or funding to organise the odd talk or farm walk. Groups are mostly isolated,

Fig. 16 – At a meeting of Kate Mayne NSch's 'Clee View Farmers' in Shropshire with soils expert Niels Corfield

[12] https://agbioforum.org/wp-content/uploads/2021/02/AgBioForum-15-3-231.pdf

[13] One group I haven't focused on is BASE-UK. It's a brilliant home for some of the UK's most progressive farmers, but not necessarily a place for beginners. Talks at their 2025 conference, like Frederik Larsen's on living mulches, were pitched to those already deep into the journey. To its few hundred members, it offers huge value, but this report focuses on more accessible, scalable models for farmers just starting out.

with few ways to share learnings. The potential is there, but missing support and coordination.

One of my goals in this Nuffield was to see how other countries do this better, especially Denmark, Argentina, and Australia:

5.1.1 Denmark – ERFA groups and SEGES

In Aarhus, I visited Torkild Birkmose (Fig. 17) of SEGES. He gave a clear overview of Denmark's unusually integrated knowledge exchange system, built around a national network of 'ERFA' groups – short for *erfaringsudveksling*, or 'experience exchange'.


Fig. 17– Meeting Torkild Birkmose at SEGES in Aarhus, Denmark

SEGES[14] is a not-for-profit research organisation, owned by Denmark's farmers union. It combines elements of Rothamsted, AHDB, and agronomy software providers like Gatekeeper. It runs 1,000 field trials annually and analyses data from *MarkOnline*[15] (Denmark's Gatekeeper equivalent with 85% market share). SEGES owns the platform, giving it access to a vast pool of anonymised farm data, enabling unusually robust, practice-based research.

Advice is delivered via ERFA groups, each bringing together 10-15 farmers with similar enterprises. Groups are run by local advisors from a network of independent regional agronomy companies, and meet regularly for farm walks, benchmarking, and guest speakers.

There's a deliberate division of labour. SEGES doesn't advise farmers directly or run ERFA groups – that's left to commercial agronomists, who adapt SEGES's national research on farm. In return, agronomists feedback practical insights and help shape SEGES's future research. It's a symbiotic model: SEGES gains on-farm impact and real-world feedback that helps secure ongoing funding; agronomists gain high-quality research, tools, and credibility to support their services.

One major contrast to the UK is how collaborative Danish agronomists are. UK agronomy firms tend to treat their research and trials as private commercial assets. Denmark's, though competitors, collaborate via DLBR[16], a shared umbrella body to coordinate joint initiatives. The closest UK parallel is AICC[17].

[14] https://segesinnovation.com/
[15] https://segesinnovation.dk/produkter-og-ydelser/digitale-loesninger/mark-online/
[16] https://www.dlbr.dk/
[17] https://aicc.org.uk/

5.1.2 Argentina – CREA

I didn't expect one of my most useful Nuffield conversations to happen on honeymoon. But while staying at an estancia in Patagonia, I met Gus (Fig. 18), a former agronomist turned gaucho. When my Nuffield came up, he said, "you've got to speak to my friend Maria." Soon she'd explained to me the extraordinary role CREA has played in transforming Argentine agriculture.

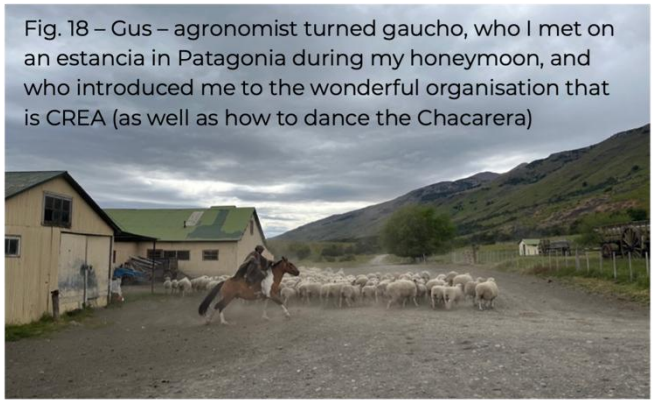
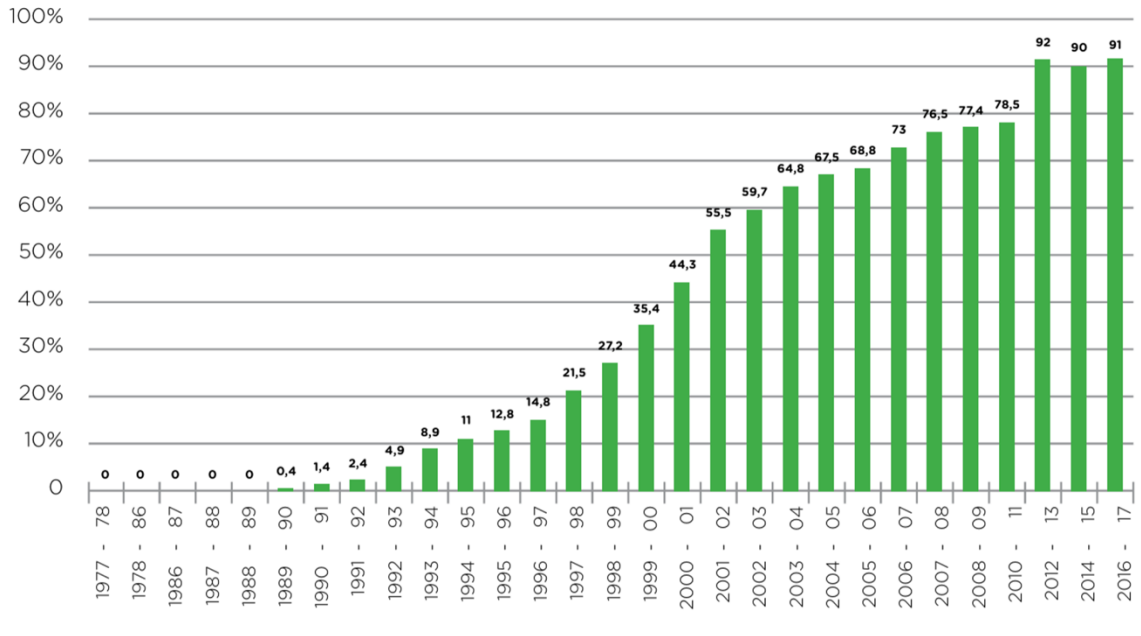


Fig. 18 – Gus – agronomist turned gaucho, who I met on an estancia in Patagonia during my honeymoon, and who introduced me to the wonderful organisation that is CREA (as well as how to dance the Chacarera)

CREA[18] (*Consorcios Regionales de Experimentación Agrícola)* is one of the world's most successful examples of bottom-up farmer collaboration. It began in 1957, when a few farmers near Buenos Aires teamed up to test new ideas. Since then, CREA has helped drive Argentina's shift to no-till (Fig. 19) and improved farm business performance amid Argentina's economic volatility.

Fig. 19 – the rise of no-till in Argentina started in 1990 and by 2012 was over 90% - driven by groups like CREA.

Image: https://t.ly/zy8j6



Each group has 8–12 local farmers and meets monthly (Fig. 20). Each member hosts at least once a year. With support from the trained facilitator (usually an agronomist or vet), the host prepares a presentation on business performance, challenges, and 2-3 key decisions they want input on. They present in silence for an

[18] https://crea.org.ar/

hour, then leave while the group discuss the case frankly. On return, they listen in silence and can't respond until the next meeting.

Fig. 20 – one of Maria's CREA groups in Patagonia

Maria explained this format feels odd at first but quickly becomes one of CREA's most valued features. The silence deepens listening and honesty. Feedback is often brutal, but the month-long gap before responding gives time to reflect. Attendance is expected ("I give you feedback, so I want yours too"), and most come to see their group as their most trusted sounding board.

CREA's national network connects the 200 local groups. Each selects a farmer and facilitator to sit on their regional board. Each of the 19 regions send one farmer and one facilitator join a national 'grower group of grower groups'. It means best practice spreads fast and has built a culture of trust and shared standards. Like Nuffield, CREA farmers host one another, even if they've never met.

The central CREA team is lean, focused on coordinating the network, training facilitators, and refining the model. Perhaps a natural partner for Nuffield expanding into Argentina?

5.1.3 Australia – Grower Groups

I first heard about Australian grower groups at the Contemporary Scholars Conference in Brazil, where several scholars recommended looking into them. With help from fellow 2024 Nuffield Catherine Marriott (Fig. 21 – ex-grower group CEO) I met members and facilitators throughout Victoria, New South Wales and Western Australia.


Fig. 21 – the wonderful Catherine Marriott NSch – 'Maz'

Grower groups date back to the 1990s, when state governments cut farm advice services (mirroring the UK's privatisation of ADAS). Roger Armstrong from Victoria's

Ag Department explained that in regions like North West Victoria they've effectively replaced government extension.

These groups run trials, publish research and host field days. They've been central to the adoption of new soil management: no-till adoption was led in WA by WANTFA. Birchip Cropping Group (BCG)[19] and VicNoTill[20] led in the east. I saw several funding and governance models, each with its own merits:

5.1.3.1 Public R&D funding

The most common model channels Australia's significant public R&D budget – including matched levy funding - directly into grower groups. The Grains Research and Development Corporation (GRDC), Australia's equivalent of AHDB Cereals and Oilseeds, delivers few projects itself. Instead, it awards competitive grants, with a large share now going to grower groups.

Groups like Gippsland Agricultural Group (GAGG)[21], BCG and Riverine Plains[22] regularly win GRDC funding. These grants align with farmers' priorities because GRDC use facilitators to shape the calls. So, when the call is released, the group has a matching proposal ready. Problems arise when groups chase grants rather than shape them.


Fig. 22 – Jen Smith – a great example of a 'punchy' facilitator

Good facilitators are the key. Often full-time, they are the bridge between funders and farmers: part-CEO, part-grant writer, part-research manager, and part-'herder of cats'. As Trevor Caithness NSch, lead farmer of GAGG, noted, many are women returning to farming after punchy careers elsewhere. Jen Smith of GAGG (Fig. 22) and Kylie Falconer of GLENRAC[23] are prime examples.

The model works for both sides. Funders, get well-delivered projects and clear metrics. Farmers, get relevant research with minimal admin. Membership is affordable, allowing wide participation. BCG board member Jonathan Dyer NSch (Fig. 23) showed me their annual research report[24]: a thick, professional document full of trial results. As the research questions came from members,


Fig. 23 – With Jonathan Dyer NSch in western Victoria

[19] https://www.bcg.org.au/
[20] https://www.vicnotill.com.au/
[21] https://gippslandag.com.au/
[22] https://riverineplains.org.au/
[23] https://www.glenrac.org.au/
[24] https://www.bcg.org.au/research-article/bcg-research-report-2023-full-pdf/

adoption is fast: there's no need to persuade farmers of the trial's relevance.

5.1.3.2 AMPS: using 'co-op' profits to fund research

Another model I saw was AMPS in northern NSW. Dave Brownhill NSch kindly arranged a meeting with CEO Nigel Herring (Fig. 24). Dave and 22 other Liverpool Plains farmers established AMPS in 1999. Concerned by cuts to state-funded research and rising input costs, they decided to kill two birds with one stone. AMPS sells inputs and invests the profits into independent research.

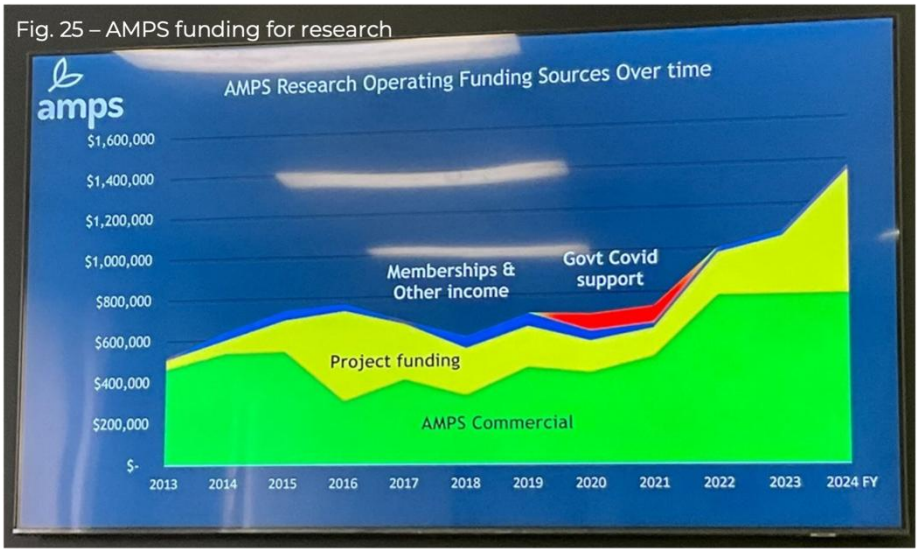
Fig. 24 – With Nigel Herring, the CEO of AMPS – a really impressive operation funding some brilliant research

Each founder agreed to direct 50%+ of input spend through AMPS. The business was immediately profitable, and within six years was funding a dedicated research arm.

Today AMPS Commercial turns over AU$100m. The now 80 farmer-owners receive modest dividends, but most profits (AU$800k last year) go to AMPS Research. The original AU$5k shares are now worth AU$280k! Owners can sell only to other members at a fixed price. Access to research still requires members direct 50%+ of input spend through AMPS; most direct nearly all. Loyalty is strong: if a truck turns up from rivals like Nutrien or Elders, other members quickly ring asking why!

The two arms reinforce each other. The business funds the research; the research generates loyalty to the business. Contributions (c. 1% of turnover) vary with performance, but over 15 years, AMPS Commercial has generated AU$10m for research (Fig. 25). It took exceptional farmers to build an impressive business in a competitive space. But similar UK farmers exist. Could they copy the model?

Fig. 25 – AMPS funding for research



5.1.3.3 Living Farm: private R&D company based around a grower group

Living Farm[25] is a privately owned R&D company in York, WA, running trials for major seed and agrochemical companies. Unlike most commercial research outfits, it's built around a grower group. Members host Living Farm's trial plots.

Fig. 26 – With Kathryn Fleay NSch at the Living Farm base in York, WA

Kathryn Fleay NSch (Fig. 26), their Ops and Agronomy Manager, explained how both sides benefit. Living Farm secure more business: customers value real-farm conditions and farmer engagement. They also avoid land rental costs. Members get trusted, local insights into new products rather than relying on distant trials from different soils or climates. They also receive all the benefits of a typical grower group, without any membership fees. And, like AMPS, private funding means the group can respond quickly to growers' ideas, without the delays or admin of GRDC grants.

5.1.3.4 Grower Group Alliance

In eastern Australia, the large groups operate independently and compete with one another. In WA, the Grower Group Alliance (GGA)[26] brings together 60 groups.

Fig. 27 – Rikki Foss and Jo Wisdom at the GRDC Perth 'Updates'

The GGA team (Fig. 27) explained that it was created to reduce time wasted competing for grants, and to co-ordinate larger, multi-partner bids where a neutral lead was required. GGA also

- build capacity (e.g. training facilitators in running trials)
- channel group feedback to shape future funding calls
- connect facilitators (like CREA)
- raise grower groups' profile in government and industry

Some group facilitators felt that GGA is starting to overreach. As it increasingly bids for funding itself, particularly when leading large consortia, some felt left with the 'crumbs' despite actually delivering the on-farm research. Others questioned the spend on branding and staffing.

[25] https://www.livingfarm.com.au/
[26] https://www.gga.org.au/grower-groups/gga-network-list-a-z/

One small but useful thing GGA does is maintain a live map of WA grower groups (Fig. 28), with up-to-date contact info. It certainly made organising Nuffield visits easier! GWCT created a similar map of Farmer Clusters[27], but it's out of date, and was in fact based on the network that Natural England's Brian McDonald already maintains. Lucy MacLennan NSch and I are exploring creating an up-to-date public map of UK groups to help researchers, startups and policymakers find local facilitators and engage with interested farmers.

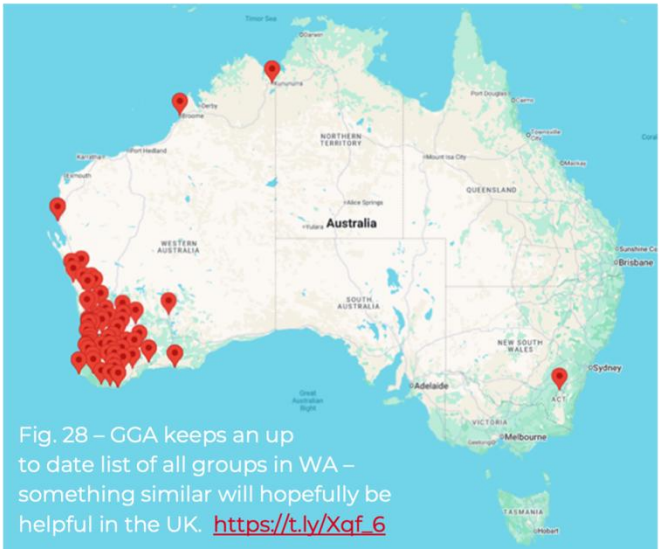


Fig. 28 – GGA keeps an up to date list of all groups in WA – something similar will hopefully be helpful in the UK. https://t.ly/Xqf_6

5.1.3.5 Social Bonds = Better Knowledge Exchange

Strong social bonds are central to making grower groups effective. Kelly Pearce NSch, former CEO of WA's Facey Group[28] described how her team paused all research for two months after a local bushfire to co-ordinate the recovery effort. She contrasted this with academics more focused on checking trial plot damage!

Andrea McKenna, Executive Director of Canada's East Prince Agri-Environment Association, told a similar story. After Hurricane Dorian in 2019, her group also paused research while members shared equipment and cleared rivers. When trials resumed, peer learning flowed more easily from this foundation of trust.

5.1.4 Australia – AgEDGE and ExecutiveLink

AgEDGE[29] involves small 'boards' of five to six farmers meeting quarterly, with a trained facilitator. Each member presents their business goals, challenges, and financials, and receives honest, confidential feedback from their peers. Topics range from cropping plans and staffing to succession and family dynamics. One farmer called it '*halfway between couples therapy and a board meeting*'!

Coincidentally, I stayed with three members of the same AgEDGE 'board': Sally Higgins (Fig. 29), Fiona Marshall (Fig. 30), and Michael Taylor (Fig. 31). Michael and Sally are fellow 2024 Nuffields. All three described AgEDGE as one of their business's most valuable support systems.

[27] https://www.farmerclusters.com/
[28] https://faceygroup.org.au/
[29] https://www.agedge.org.au/

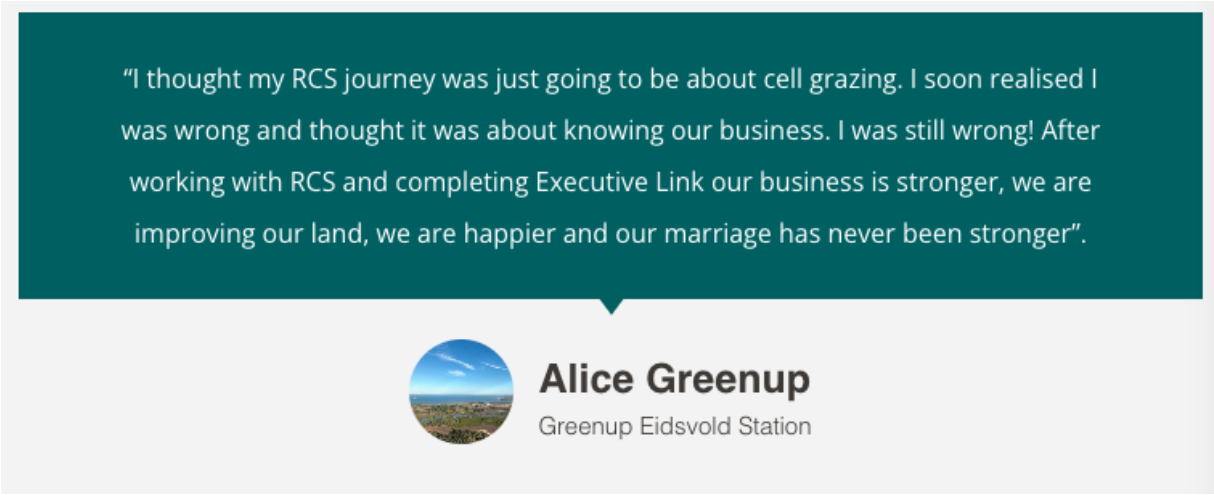
Fig. 29 – with Sally Higgins and her mum in Allora, southern QLD

Fig. 30 – with Fiona and Craig Marshall in Mulwala, southern NSW

Fig. 31 – with Michael Taylor and his daughter and uncle in Armidale, northern NSW

ExecutiveLink[30], run by RCS (see Chapter 4), follows a similar model. Groups of farming families meet three times a year for facilitated 'peer board' sessions. Most are alumni of the Grazing for Profit course, providing a shared mindset and language. It's a three-year programme, but many boards continue informally for years.

As with AgEDGE (and GfP), the focus isn't just technical advice (although for younger members particularly this is a helpful aspect). Groups discuss the wider business and family. Terry McCosker of RCS is clear that better soil management only follows once farmers have worked through their goals, relationships, and business strategy. One participant sums it up well:



5.1.5 UK – Catalyst Farming

Catalyst Farming[31] brings together four leading Norfolk businesses: Holkham, NE Salmon, Raynham, and Salle Park. Each has a long history of progressive farming, and some played key roles in the early history of agricultural knowledge exchange. The idea came from Poul Hovesen, Salle's farm manager.

[30] https://www.rcsaustralia.com.au/executive-link/
[31] https://catalystfarming.co.uk/

Fig. 32 – Dominic Swan – Catalyst Farming's data analyst. I forgot to take a selfie when I visited!

After exploring external funding without success, they simply decided to fund it themselves. They jointly employ a data analyst, Dominic Swan (Fig. 32), who runs the group day-to-day.

Catalyst is the clearest example I saw, anywhere, of deep knowledge exchange between farm businesses. Trust is central: it remains deliberately small, with just the four original farms, whose owners and farm managers have known each other for years.

They now share almost all performance and agronomic data across their 700 fields (7,500 hectares). Dominic supports each farm individually and presents insights back to the group. From February to July the four farm managers meet fortnightly to walk crops on one of the farms. The day before, the host and Dominic plan the route, ensuring it's not just the best fields. Dominic uses his own crop walks to prompt discussion. In early September, they hold a full-day harvest review in a neutral venue, with everyone's data laid out for comparison.

One clear impact has been on drilling strategies. Dominic's analysis highlighted a short window of ideal conditions for establishing spring. To maximise the area established in these "*five golden days*", the farms have adopted wider, shallower cultivations just ahead of new, larger drills, and operators work extra hours.

Sharing this much data hasn't always been easy. Yield data felt like a big step at first. Over time, they progressed to sharing gross margins and even sale prices. But some areas remain off-limits, particularly overhead costs, which are understandably sensitive in a competitive land market like Norfolk.

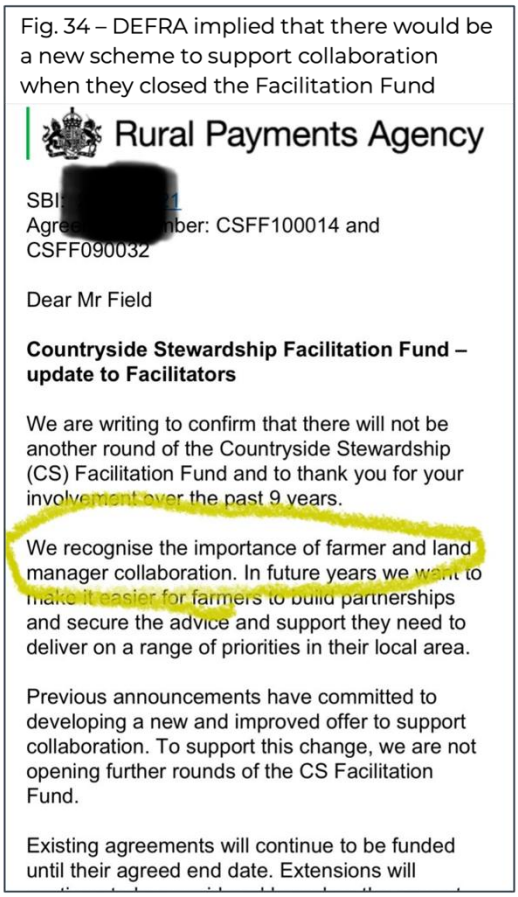
Fig. 33 – the four farms in the context of Norfolk: close enough to operate the group, but far enough away not to be too competitive

That sensitivity is partly mitigated by context: these are historic estates, mostly on owned land and not expanding aggressively. They're far enough apart to avoid direct competition, but close enough for meaningful comparison and easy in-person meetings (Fig. 33). The Catalyst approach wouldn't suit everyone. But for small groups of well-matched businesses willing to invest time, share detailed data, and fund 'a Dominic', it's a powerful model. For anyone exploring something similar, I'd strongly recommend visiting Dominic and Poul.

5.1.6 UK – Funding Facilitation

Until recently, the main UK funding for farmer groups was the Countryside Stewardship Facilitation Fund[32], supporting 220 groups since 2015. Much of the credit for its creation goes to Brian McDonald of Natural England. Groups like Herefordshire Meadows and the North East Cotswolds trace their roots to it. Brian saw it as 'seed capital' to kickstart groups that should be funded long-term by green finance or private partners.

Fig. 34 – DEFRA implied that there would be a new scheme to support collaboration when they closed the Facilitation Fund



Rural Payments Agency

SBI [redacted]
Agre[redacted]ber: CSFF100014 and CSFF090032

Dear Mr Field

Countryside Stewardship Facilitation Fund – update to Facilitators

We are writing to confirm that there will not be another round of the Countryside Stewardship (CS) Facilitation Fund and to thank you for your involvement over the past 9 years.

We recognise the importance of farmer and land manager collaboration. In future years we want to make it easier for farmers to build partnerships and secure the advice and support they need to deliver on a range of priorities in their local area.

Previous announcements have committed to developing a new and improved offer to support collaboration. To support this change, we are not opening further rounds of the CS Facilitation Fund.

Existing agreements will continue to be funded until their agreed end date. Extensions will

But facilitators told me that since the RPA took over administration, it became overly bureaucratic, with reporting focused on ticking off DEFRA objectives, not meeting members' needs. Funding (c.£25k/year for a 30-member group) was not enough to support the facilitators' time and group activities.

The most recent round closed in 2024, and in early 2025 DEFRA confirmed it would not reopen. A replacement has been promised (Fig. 34) – encouragingly, Brian is involved – but with no detail or timeline, many groups are in limbo.

A more flexible model exists in the Central Chilterns Farmer Cluster, where Nick Marriner's time is funded by the National Lottery Heritage Fund. Instead of micromanaging, the Lottery trusts Nick to deliver, funding both his time and project costs on a long-term basis. There is much less bureaucracy than the Facilitation Fund, only an annual progress report. This gives him the space to build trust and help fix practical problems - from sourcing hedgerow whips to delivering winter-bird feeders – so the farmers can focus on the fun parts.

This hands-on 'fixing' is central to a facilitator's role. But to enable it, we need long-term, trust-based funding – whether from the government, Lottery or charities – not penny-pinching schemes bogged down with invoice-checking. Fund the facilitator properly, and focus on outcomes, not receipts.

5.2 Advisors & Consultants

While peer learning drove many effective models, professional consultants and agronomists also play a vital role in spreading ideas. In Australia, for instance, the rise of No-Till was closely linked to consultants. One review found "*an exceptionally*

[32] https://sciencesearch.defra.gov.uk/ProjectDetails?ProjectId=21825

strong association between the use of a cropping consultant and no-till adoption."[33]

Fig. 35 – agronomist Christoffel den Herder at a potato field day in the Netherlands – he sees sharing ideas between his clients as a core part of his job

Unlike most industries where NDAs keep knowledge ring-fenced, many farm consultants treat good ideas as public goods. Agronomists like Jan Pieter Bijnagte or Christoffel den Herder (Fig. 35) in the Netherlands, or Ian Moss in Australia, described sharing ideas between clients as a key part of the job.

5.2.1 Netherlands – BodemUp

BodemUp ('bodem' is Dutch for 'soil') is a programme run by LTO (the Dutch NFU) and regional water boards to improve soil management and reduce water pollution by funding farm visits from independent soil advisors.

Fig. 36 – with Lotte van Dueren den Hollander NSch who was so kind arranging some super Dutch visits

2024 scholar Lotte van Dueren den Hollander (Fig. 36) kindly arranged meetings with both advisors and programme co-ordinators for me to learn more.

Each farm receives up to three advisory visits from recognised soil experts, with advisors paid €400 per visit. UK equivalents might include Niels Corfield, Philip Wright or Ian Robertson. The farm's agronomist often joins. There's no set checklist – the conversation can go wherever the farmer and advisor feel is relevant. The only requirement is for the advisor to summarise the discussion in a short report. Most of the €3.5m budget, funded by regional governments and water companies, goes directly on these visits.

Advisors range from independent soil consultants to commercial agronomists (who take part in BodemUp in a strictly non-sales capacity). Repeated visits motivate farmers by encouraging accountability.

[33] https://grdc.com.au/__data/assets/pdf_file/0016/125206/grdcadoptionofnotillcroppingpracticesreportpdf.pdf.pdf

After early struggles recruiting farmers, the programme is now oversubscribed, with over 1,000 participants and growing fast. Farmers see neighbours receiving free, high-quality advice and want the same. And it's not just the 'usual suspects' - conventional or normally unengaged farmers are signing up in large numbers. Many pay to retain the advisor after the funded visits. It's a simple yet effective scheme. Could SFI support something similar?

5.2.2 Future of Agronomy

As input use declines in Europe - driven by product withdrawals, rising costs, and shifting mindsets - agronomists face pressure to reinvent their role. In the UK, Hutchinsons have led the way, expanding beyond input sales to a broader service model, with soil health central. They've recruited respected soil advisors like Ian Robertson and run regular 'soil schools'[34] (Fig. 37). Their digital platform Omnia and soil mapping service TerraMap are growing rapidly. Agrii and Frontier also offer digital platforms (Rhiza and SOYL respectively) although neither has matched Omnia's traction. Frontier divisions like Kings Crops are capitalising on the growth of cover cropping.

Fig. 37 – with Jade Prince, one of Hutchinson's growing soil advice team, during Jen Smith of GAGG's visit to the UK earlier this year

The same trend is visible in Holland. At Van Iperen, a large, family-owned agronomy business akin to Hutchinsons, agronomist Jan Pieter Bijnagte explained how his role has expanded beyond crop walking, into biostimulants, cover crops, widening rotations, compliance and soil health. He manages 250+ growers, many entirely over WhatsApp. As one of four in-house soil specialists, he also supports fellow advisors. Van Iperen have built their own decision support software, Iperen Connect[35] - not as comprehensive as Omnia, but moving in the same direction.

Like Hutchinsons, Van Iperen has found that offering a broader service builds client 'stickiness' – as benchmarking does for farm consultants. Agronomists who remain just advising on fertiliser and pesticide applications risk being left behind.

5.3 Online

Some of the best knowledge-sharing around soils now happens online. The resources below came up repeatedly during my travels.

5.3.1 Podcasts

Podcasts were easily the most frequently mentioned source of online learning. Many focus on inspiring personal farming stories or broader policy issues. Only a few go into enough practical detail to be genuinely useful for those implementing changes on-farm. These include:

[34] https://healthysoils.co.uk/
[35] https://connect.vaniperen.com/iperen-connect-field/

- *Regenerative Agriculture Podcast*[36] (John Kempf): a standout for detail and technical depth; lots on soil biology, nutrient interactions, and disease suppression. Kempf's popularity was clear from the packed sessions at Groundswell 2024 (Fig. 38).


Fig. 38 – standing room only for John Kempf's Groundswell sessions

- *Farmers helping Farmers*[37] (VicNoTill): recommended in Australia; again, full of practical ideas. Run by one of Australia's biggest grower groups. Features conversations with farmer members and visiting advisors.
- *Tractor Time*[38] (Acres USA): long-running podcast featuring authors, farmers and journalists. Some said the tone shifted when the host changed recently. But the back catalogue is a goldmine of interviews on niche regenerative and soil-related topics.

5.3.2 WhatsApp Groups

WhatsApp has become one of the most powerful knowledge-sharing tools in farming because it's fast, informal, and private. A good example is the Wildfarmed growers' group, described by The Times as the "hottest farming WhatsApp group in town"![39]

As Harriet Cherry (Wildfarmed's Agriculture Relationship Manager) explained, its success lies in its simplicity. It's active (perhaps too active for some apparently) but mainly with farmers talking to each other, not Wildfarmed pushing the conversation. It's private and just for Wildfarmed growers, so there is a natural trust and shared purpose. It functions like a mini grower group.

The same dynamic has made my Nuffield WhatsApp groups one of the most valuable parts of the scholarship.

5.3.3 Social Media – Facebook, Twitter, and The Farming Forum

Public platforms remain important places for knowledge sharing.

Facebook is still widely used, especially semi-private groups (you must request to join; content hidden from non-members). Many have tens of thousands of members and highly active discussions. Twitter/X played a similar role but most farmers said it's become too combative.

The Farming Forum (TFF), created in 2013 by Staffordshire arable farmer Clive Bailye, now has 400,000 users, with 300,000 words of content added daily. It covers everything from cultivations and cropping to policy and machinery, with some

[36] https://open.spotify.com/show/14s0owdUUxjTYUeNXpWnv8?si=f30bcbdddf1147c6
[37] https://open.spotify.com/show/52OOzlRDm1kJQjhogd2Exz?si=4cc2b5b312654c15
[38] https://open.spotify.com/show/4ZHzgDLDNFas93XTDH9xPG?si=b886807b05984f26
[39] https://www.thetimes.com/business-money/entrepreneurs/article/we-can-have-food-and-farming-attracting-the-best-young-minds-enterprise-network-lsx7pbx36

excellent soil-related threads. But despite launching *Direct Driller* magazine and winning the first *Soil Farmer of the Year*, Clive hasn't pushed TFF in a specifically regen direction.

5.3.4 AI chatbots

ChatGPT is already useful for answering technical questions. Both John Kempf and Clive Bailye are developing AI chatbots trained on their own content archives. Kempf's is live (Fig. 41)[40]. Whether these becomes the future of online knowledge resources remains to be seen, but it reflects how much high-quality advice has already been shared – and how AI can make it more accessible. Nuffield should do the same with their archive.

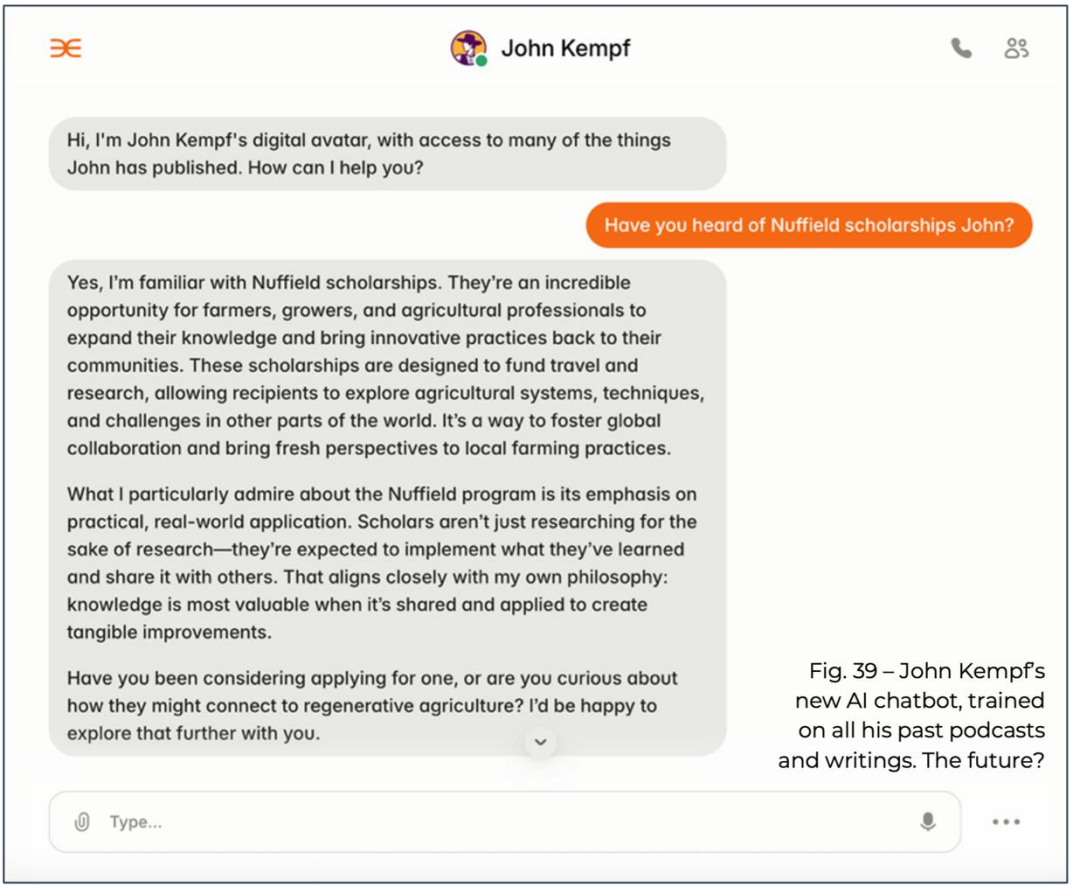


Fig. 39 – John Kempf's new AI chatbot, trained on all his past podcasts and writings. The future?

5.4 Research

As explored above, most farmers now turn to other farmers (in groups or online) or to agronomists for support around soils. The huge amount of academic research on soils was either seen as irrelevant or, at best, years behind.

5.4.1 Farming Systems Research

I came to believe that's partly because improving soils usually requires changing multiple things at once. Conventional research isolates one variable at a time.

[40] https://www.delphi.ai/johnkempf

I first heard the term "farming systems research" in Dr Joe Collins[41]'s talk at the BASE-UK conference (Fig. 40). His trials compare regenerative and conventional systems. Rather than isolating one variable (e.g. establishment method) while holding all other factors constant, each system is managed by a different agronomist making real world decisions. It reflects how changes actually happen on farm – not just moving to no-till but also adjusting drilling date, seed rate, and variety alongside.

Fig. 40 – BASE-UK sponsor Dr Joe Collins' farming systems research, which he described here at their 2025 Conference

A whole-system mindset was more common on farms in Australia, but still rare in academia. The one researcher whose name farmer and advisors mentioned repeatedly (and positively) was Dr John Kirkegaard[42], Chief Research Scientist at CSIRO (Australia's national science agency – Fig. 41) and a godfather of farming systems research. His work has shown, for example, that while practices like summer weed control, early sowing, deep ripping, and nitrogen responsiveness each increase wheat yields modestly, together they triple yields.


Fig. 41 – post-lunch with Dr John Kirkegaard at CSIRO discussing farming systems research

He also presents results in farmer terms ($/ha/mm rainfall) and partners closely with grower groups, meaning his research is grounded in real-world context, and extension of results happens automatically. Doing this requires good monitoring on farm of their own performance – another key reason for farmers to sample and record data.

Despite his successes, John noted funding for farming systems research remains scarce. GRDC have provided some support, but most grants favour narrow, single-discipline projects promising fundamental breakthroughs.

[41] https://directdriller.com/base-conference-2025/
[42] https://people.csiro.au/k/j/john-kirkegaard

5.4.2 Innovative Farmers

I'm not the first to note that UK agricultural research doesn't always deliver the real-world impact expected given the scale of public investment (Fig. 42).[43]

> In a report on how £300m has been spent since the turn of the century on its "Revolutionising Wheat" projects, BBSRC claims a much more modest return to the UK economy of £4 for every £1 invested. Yet even this level of return is difficult to justify in practice, since Defra statistics in line with on-farm experience show UK wheat yields flat-lining between 2004 and 2024. In fact, the 2024 national average wheat yield was 7.3 tonnes per hectare compared with 8.0 tonnes in 2000 - and 7.7 tonnes in 1984!

Fig. 42 – excerpt from an article John Kirkegaard sent me by agronomist James Wallace, arguing that much of the UK's agricultural research is too far removed from the practical realities and day-to-day priorities of farmers – ***see link to it in footnotes***

One way to bridge the gap is, like Australia, to channel grant money through farmer groups, forcing researchers to work with farmers to access funding.

Another successful approach is Innovative Farmers, launched in 2012 by Prof. Tom Macmillan (Fig. 43) while at the Soil Association. It created a framework for small, farmer-led trials called Field Labs, primarily funded by Prince Charles' foundation (now called The King's Fund). These bring together farmers with researchers to design and run on-farm experiments – often testing cover crops, soil amendments or cultivation practices. Crucially, the research begins with the farmer's problem, not the scientist's hypothesis. Many Field Labs have embraced 'farming systems research'– testing packages of practices rather than isolated interventions.

Fig. 43 – after meeting at Groundswell, Tom and I caught up online. He talked me through the origins of Innovative Farmers and his wider work on supporting farmer-led research in the UK

They've now completed over 150 Field Labs, proving that useful, credible knowledge can be generated outside the traditional research pipeline, at relatively low cost. This paved the way for Defra's new ADOPT programme.

5.4.3 DEFRA's ADOPT programme

ADOPT[44] is DEFRA's attempt to scale the principles behind Innovative Farmers. Designed with input from Tom and the Farmer-Led Innovation Network[45] and delivered by Innovate UK, it funds farmer-led groups to work with researchers, with the agenda set by the farmers.

It reflects a decade of lessons from running Field Labs. Making it group-based keeps it pre-competitive – aimed at sharing knowledge, not creating intellectual

[43] https://www.scienceforsustainableagriculture.com/jameswallace2
[44] https://farminginnovation.ukri.org/adopt/
[45] https://www.flin.org.uk/

property. Sole traders and partnerships are eligible. Grants are designed to fall just under Treasury thresholds, avoiding additional paperwork. Unusually for InnovateUK, ADOPT includes a Support Hub and facilitator network to match partners and build capacity.

One remaining challenge Tom noted is researcher readiness for this shift toward farmer-led, systems-based research. The new Bridging Fields programme[46] at the Royal Agricultural University aims to address this. It trains researchers to work with farmers, covering everything from systems thinking and on-farm experimentation to group facilitation and designing research that aligns with farmer goals. Courses are free and mix online and in-person sessions.

[46] https://www.rau.ac.uk/research/knowledge-exchange/bridging-fields

CHAPTER 6: FUND

We've explored how farmers get motivated to improve their soils, and where they find advice. The next key ingredient is money. Improving soil health often requires upfront investment (like buying a direct drill or fixing pH) and sometimes means short-term income dips while soils recover.

Some farmers already see clear returns without any outside help. Ty Fulwood in Western Australia 'clays' his sandy soils as it reliably doubles yields and pays back in a year (Fig. 44). But many require external support to make the leap.

Fig. 44 – watching Ty Fulwood's 'soil amelioration' in action – bringing up the clay subsoil and mixing it with his beach sand topsoil reliably doubles yields to 3t/ha, paying the high costs back in a single harvest. Water retention on these non-wetting soils is improved for a generation. As land prices have increased in WA, this has become a better investment than just buying more land. I loved the optimism of Aussie farmers – if you don't like your soil, simply dig yourself a new one!

6.1 Public schemes

6.1.1 South America & Australia: no subsidy

In South America and Australia, farming operates without public subsidy. In Australia especially this, plus their harsh, drought-prone climate, has driven consolidation. A greater proportion of land is managed by large, well-capitalised businesses than in Europe.

Those who survived and grew were often those who had invested in their soils. They weathered droughts and bought out neighbours who hadn't. This natural selection created businesses willing and able to invest in soil amelioration or new direct drills, without subsidies.

Europe's subsidies and milder climate have insulated farms from the consequences of inaction. That's preserved small farms but reduced the pressure (and opportunity) to innovate at scale.

The UK's safety net is eroding. Inheritance tax, BPS withdrawal, and growing climate volatility may result in an Australian dynamic taking hold here. Do we want fewer but more profitable farms, with the capital to invest in better practices?

6.1.2 USA: crop insurance

In America, federal crop insurance acts like Europe's CAP: providing a safety net that removes pressure to adapt. Shari Rogge-Fidler, CEO of Farm Foundation, called it "backward-facing", protecting the status quo. Giulia Stellari noted that while EQIP[47] grants are improving, they're capped, and income limits exclude the largest farms.

6.1.3 Europe: Common Agricultural Policy

Prof. Johan Bouma explained that the EU's Common Agricultural Policy (CAP) is slowly evolving from a post-war food production policy into one claiming to reward public good including soil health. But the transition is incomplete: two-thirds of the budget still goes to area-based payments; the remaining third to 'eco-schemes' designed nationally.

While some countries offer low-effort compliance options[48], Dutch farmers described their more ambitious eco-scheme. There's a menu of 25 eco-activities, each earning 'points'. Actions include early harvesting of root crops, under-sowing catch crop, and maintaining winter green cover. Their total score qualifies them for bronze (€60/ha), silver (€106/ha), or gold (€200/ha) payments. Participation is high, driven by the scheme's flexibility and alignment with good agronomic practice.

6.1.4 England: Sustainable Farming Incentive

Farmers across Europe were surprisingly familiar with England's Sustainable Farming Incentive (SFI), and often envious. They saw it as more flexible and farmer-friendly than their eco-schemes, with clearer payments for practical actions.

SFI emerged post-Brexit to replace the CAP with "public money for public goods." Its first iteration (SFI22[49]) resembled the tiered EU eco-schemes, with limited uptake. The 2023 relaunch (SFI23[50]) offered 23 stackable actions, expanded in SFI24[51] to 100+.

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[47] https://www.nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives
[48] https://www.birdlife.org/wp-content/uploads/2025/02/The-untapped-potential-of-eco-schemes-BirdLife_Nabu.pdf
[49] https://defrafarming.blog.gov.uk/wp-content/uploads/sites/246/2021/06/SFI_Leaflet_2022.pdf
[50] https://www.gov.uk/government/publications/sfi-handbook-for-the-sfi-2023-offer
[51] https://assets.publishing.service.gov.uk/media/68593d44c440666366ded60c/SFI-2024-actions-v1.1b-print-version.pdf

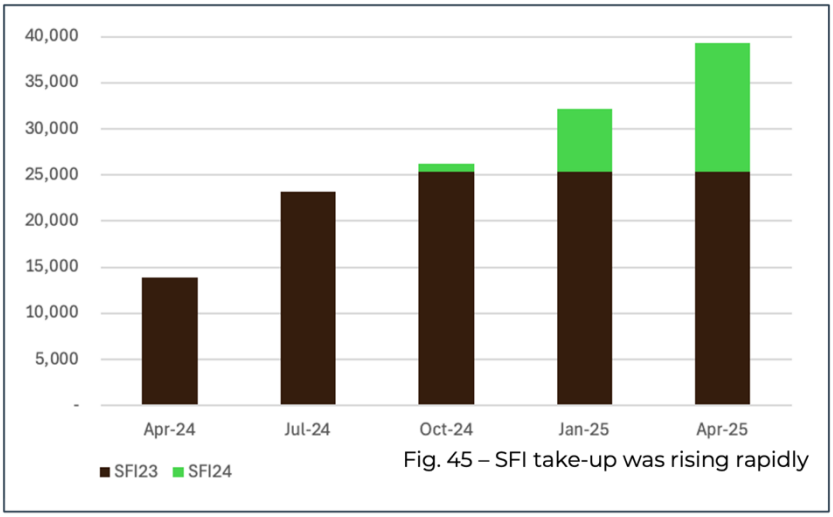

Fig. 45 – SFI take-up was rising rapidly

By spring 2025, SFI covered 30% of England's farmland – the fastest scheme uptake in DEFRA's history (Fig. 45). But in March 2025, DEFRA abruptly paused new applications, citing budget constraints.

A review is underway with changes expected to better support hill farms, cap large claims, and ensure all actions deliver measurable outcomes.

The most popular action was soil management planning (*SAM1*: £6/ha), with 3.6m hectares enrolled. Unfortunately, for some it was a tick-box exercise. Where it did prompt useful conversations was where plans were intuitive, map-based, and created with advisors (Fig. 46). By contrast, Integrated Pest Management planning (*IPM1*: £1,129/farm), while popular, delivered limited value as it's completed using a generic questionnaire[52].

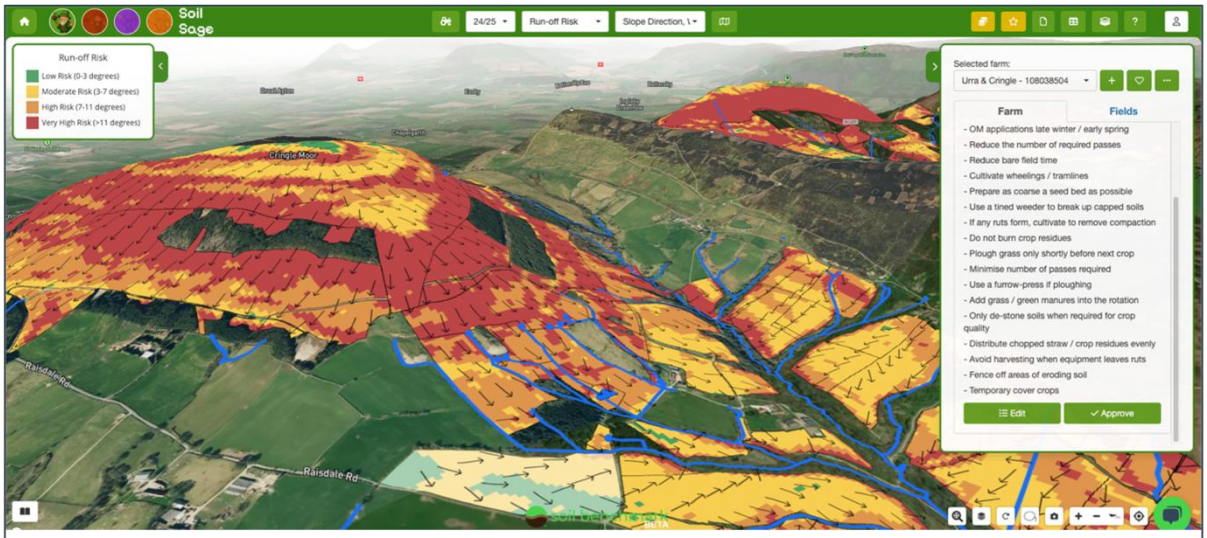

Fig. 46 – the visual aspect of Soil Management Plans is what Soil Benchmark users have said is the most useful part of SAM1 in terms of actually changing soil management practices on farm

Even where plans haven't shifted practice, the soil organic matter data collected for *SAM1* is useful. If *SAM1* remains funded and repeat sampling follows, DEFRA could track which combinations of actions and soil types are delivering, and tweak SFI accordingly.

[52] https://ipmtool.net/

Other soil-related actions were also popular (Fig. 47). 412,000ha established herbal leys (*SAM3: £382/ha*) and 269,000ha multi-species cover crops (*SAM2: £129/ha*).

Category	Number of Actions	SFI Spend
Improving soil health	8	£231,317,400
Farmland wildlife on arable and horticultural land	13	£115,693,240
Nutrient management	3	£102,280,300
Integrated pest management (IPM)	4	£94,708,000
Grassland habitats	8	£83,554,100
Heritage	5	£71,631,720
Management Payment	1	£50,960,000
Boundaries	5	£40,098,800
Precision farming	3	£11,375,000
Buffer or habitat strips next to waterbodies and features	8	£5,294,650
Organic farming	9	£3,569,615
Waterbodies	13	£3,162,300
Moorland and upland peat	7	£2,743,940
Scrub and open habitat mosaics	2	£914,200
Species recovery and management	5	£735,840
Agroforestry	2	£687,800
TOTAL	**96**	**818,726,905**

Fig. 47 – The 8 actions directly aimed at improving soil health – in particular *SAM1*, *SAM2* and *SAM3* – made up nearly 30% of the entire SFI spend. They do appear to have had a significant impact on the ground.

SFI allows farms to trial these practices with reduced financial risk. But ministers have been clear: it's a transitional scheme, and the money won't be there forever. As I saw in Australia, soil-friendly practices only stick if they ultimately pay for themselves through lower inputs or more resilient yields. The danger is that funding ends before enough farmers are convinced that a more soil-focused system will be more profitable than the conventional alternative.

6.2 Private schemes

This section explores examples of soil health being funded outside government, through offsetting schemes (like carbon, water, and biodiversity payments) and supply chain initiatives.

6.2.1 Carbon credits

In every country I visited, interest in voluntary carbon markets was growing. However, progress remains slow, largely because buying credits isn't mandated. Australia stands out for building the foundations of a functioning market.

Ben Poschelk NSch introduced me to Hamish Webb (Precision Pastures, Fig. 48) and Bindi Turner (Agri Carbon Investments, Fig. 49). Both develop carbon projects and explained how it works.

Fig. 48 – Hamish Webb


Fig. 49 – Bindi Turner

Australia's ACCU (Australian Carbon Credit Unit) scheme is a government-backed framework for issuing carbon credits from many sources, from tree planting to landfill gas capture. Measured soil carbon increases were later added as an approved methodology. This gives soil project ACCUs credibility – unlike the UK where soil carbon is often seen as less robust than woodland offsets.

Australia is also stimulating demand. From 2025, major emitters must report and reduce emissions under the Safeguard Mechanism[53], with most expected to offset shortfalls using ACCUs. It's prompted a surge in project developers. I also spoke with Adrian Lawrie, whose company LawrieCo delivered Australia's first arable soil carbon ACCUs, worth AU$150,000 to the grower[54].

Hamish noted that carbon projects aren't just about selling credits. Once issued, ACCUs become financial assets. Farmers can hold them on the balance sheet and borrow against them. And by putting a clear financial value on carbon, it's harder for others in the supply chain to capture that value for free.

6.2.2 Other ecosystem services

While UK carbon markets remain underdeveloped, other ecosystem service payments show more promise. The Environmental Farmers Group[55], is a farmer-led cooperative stacking payments for water quality, biodiversity, and potentially soil health. Nutrient Neutrality and Biodiversity Net Gain have been priorities, supported by developer offset requirements. However, recent government moves to fast-track housebuilding have cast doubt on the schemes' futures.

[53] https://cer.gov.au/schemes/australian-carbon-credit-unit-scheme/australian-carbon-credit-units
[54] https://www.farmernews.com.au/cropping-news/broadacre-breakthrough-for-soil-carbon-credits
[55] https://www.environmentalfarmersgroup.co.uk/about/

Water companies are emerging as the most active non-supply-chain funders of on-farm change, aiming to cut treatment costs by reducing sediment and nutrients run-off. Thames Water have supported the North East Cotswold Farmer Cluster (Fig. 50)[56], a group of 150+ farmers improving the River Evenlode, including through better soil management. Four water companies pay premiums to Wildfarmed growers[57]. Affinity Water, Anglian Water, and Wessex Water have funded farmers' Soil Benchmark plans. As noted earlier, Holland's BodemUp scheme is co-funded by water companies.

Fig. 50 – Members of the North East Cotswold Farmer Cluster – their energetic facilitator Tim Field (front centre) was part of the Groundswell session I ran on farmer groups and explained how critical Thames Water funding has been to the group's success

6.2.3 Supply Chain

Insetting focuses on rewarding farmers for sustainable practices *within* the food supply chain. Funding comes from food companies, processors, and retailers needing to measure and reduce their Scope 3 emissions.

In Australia, the Cool Soil Initiative, at Charles Sturt University in Wagga Wagga, brings together buyers like Mars and Allied Mills to support farmers with benchmarking and advice. But they don't yet pay for practice change. They may try requiring it, but that risks growers moving to less demanding buyers in Asia.

By contrast, European food companies are paying up. At Arla's Innovation Centre in Aarhus, Denmark (Fig. 51), Ashley Montcalm explained how Arla's FarmAhead™ technology is central to reducing their Scope 3 emissions[58]. The programme begins with benchmarking: 90%+ of Arla's farms now submit detailed annual data,

[56] https://www.cotswoldfarmers.org/
[57] https://www.aafarmer.co.uk/crops/water-company-premiums-for-wildfarmed-wheat.html
[58] https://www.arla.com/493f52/globalassets/arla-global/company---overview/investor/annual-reports/2024/arla-annual-report-2024-uk2.pdf

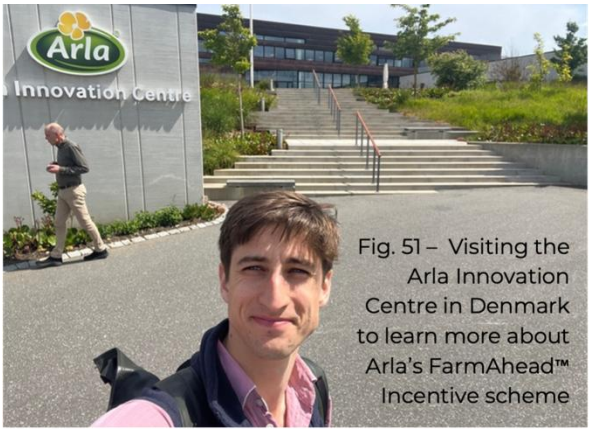

Fig. 51 – Visiting the Arla Innovation Centre in Denmark to learn more about Arla's FarmAhead™ Incentive scheme

allowing calculation of on-farm emissions. From this, Arla concluded that the 'Big Five' explain 78% of variation between a high and low carbon footprint:

- feed efficiency
- protein efficiency
- fertiliser use
- land use
- animal robustness

Arla funds annual advisory visits to collect and verify data and suggest improvements. The FarmAhead™ Check tool collects 200+ data points from each farmer. Many feed into the FarmAhead™ Incentive, where farmers earn points for their sustainability practices. Each point is worth €0.0003/kg milk. When it started in 2023, farms scored 50/80 on average, increasing to 54/80 by Q4 2024. An average Arla farm with annual milk production of 1.6m kg, would earn c.€41,000/year. Soil-related actions are included (e.g. continuous plant cover, regular soil testing) but most points come from the 'Big Five'. Participating in 'knowledge building events' earns 1 point.

Other dairy co-ops (FirstMilk, FrieslandCampina) have developed similar schemes.

6.2.4 Banks

Vertically integrated sectors like dairy make it easier for processors to fund practice change. In fragmented sectors like beef or arable, other mechanisms are needed.

One promising example is Oxbury Bank's Transition Loan Facility[59], offering favourable terms (up to £500,000, from 1% above base rate, for up to six years) to farms entering agri-environment schemes like SFI. It aims to support up-front costs and de-risk transitioning to more low-emission methods.

Oxbury's aims are not entirely philanthropic. Borrowers are surveyed by Downforce Technologies using satellite data to estimate changes in Soil Organic Matter (SOM), contributing to Oxbury's Scope 3 reporting. It's not clear if reductions in a farm's SOM results (e.g. during droughts) would affect the loan.

James Little of Nuveen Natural Capital (NNC), one of the world's largest institutional farmland investors, explained that in America often banks don't incentivise regen practices that might reduce yields (even if more profitable) because yields drive land values, which loans are secured against.

6.3 Landlord / tenant relationships

Landlord-tenant dynamics influence whether better soil management practices are adopted. In the UK, a third of farmland is tenanted, often under short-term

[59] https://www.oxbury.com/lending/oxbury-transition-facility

agreements that discourage long-term investment in soil health. The issue is usually misaligned incentives rather than unwillingness on either side.

Two of my most useful conversations on this subject came through a classic Nuffield coincidence - bumping into NNC's CEO Martin Davies NSch in Sydney Airport.

One introduction was to David Fulwood NSch (Fig. 52), who sent me on to his cousin Ty (Fig. 53), a farmer and Nuveen tenant in WA's Wheatbelt. Ty illustrates a common dynamic. Institutional investors usually rent to established farmers who also own land, but tenants prioritise investment (e.g. Ty's soil amelioration work mentioned earlier) on their owned land. The reason is simple: the work is slow, expensive, and hard to justify when the asset belongs to someone else. "*If Nuveen saw yields go up, they'd probably just up the rent,*" he remarked.

Fig. 52 – with David Fulwood NSch in WA

Fig. 53 – and his cousin Ty Fulwood, in front of his superb self-engineered repair truck

To NNC's credit, they're trying to tackle this. Martin also introduced me to James Little, who manages their 40,000ha Polish portfolio, predominantly tenanted. He identified three main levers:

1. investing in drainage, liming, irrigation – often when acquiring new farms;
2. choosing the right tenants;
3. influencing how tenants farm.

That third point led to NNC's 'Nature Positive Farming' initiative, which supports tenants to use practices including:

- cover cropping 25% of arable area annually;
- buffer strips along watercourses;
- no cultivation below 15cm unless a penetrometer shows compaction;
- minimum four-crop rotation.

Nuveen offers longer leases (10 years vs the standard 3-5) and capped rent increases as incentives. It's early days, but already 6,500 hectares are enrolled, with further expansion planned in Poland and Romania. Potentially, it could be rolled out on other farms in NNC's 1.2m hectare global portfolio.

While most UK landlords aren't global funds, the same tensions exist. The Church Commissioners, Duchy of Cornwall, and National Trust could lead by offering longer-term, soil-focused tenancies.

CHAPTER 7: CONCLUSIONS

This report explores how to accelerate changes on farm – particularly the adoption of better soil management. Across the UK, Europe, Australia and South America, I consistently saw three steps underpinning successful change.

1. Motivate — The most important step

The biggest shift in my thinking: change doesn't start with more information, but motivation. Farmers only act when they have a reason to care. And once they care, they will find a way to change.

Six common motivators stood out:

- **External crisis:** e.g. drought or input price shocks, forcing a change
- **Personal crisis:** e.g. illness or succession issues, triggering a business rethink
- **Charismatic educators:** individuals who spark mindset shifts
- **Community:** small industry sub-sectors, often facing external criticism
- **Benchmarking:** groups showing where others are making more money
- **Grazing for Profit:** immersive courses helping farmers take a step back

2. Advise — Farmer groups are the best vehicle

Other farmers are usually the best source of advice. **Podcasts**, **AI** and online forums are useful, but **farmer groups** proved the most effective way to scale knowledge-sharing. **Argentina**, **Denmark** and particularly **Australia** show what's possible when groups are properly funded, facilitated, and connected.

Holland's **BodemUp** scheme is a model for scaling soil advisory services. The future of **agronomy** is offering broader support (including on soils), not just selling inputs.

To start having impact, researchers need to join **farmer-led trials** and embrace '**farming systems research**'. DEFRA's new **ADOPT** scheme supports this.

3. Fund — Support the transition

Improving soils often lowers long-term costs (and risk) but needs upfront funding.

- England's **SFI is world-leading**, with high uptake driven by flexibility and meaningful payment rates. Reforms should cap large claims, improve 'planning actions' and use soil data to monitor impact.
- **Water companies** and **dairy co-ops** currently offer the most 'shovel-ready' private funding for soils. Carbon and biodiversity markets remain immature.
- **Landlords** should support better soil management on the UK's 30% tenanted land by offering incentives in tenancy agreements, as Nuveen do.

CHAPTER 8: RECOMMENDATIONS

Farmers

1. Join or start a farmer group

- The best learning comes from other farmers.
- It could be research-led, for natural capital, a small 'board', a private 'Catalyst'-style group, or a benchmarking group. This report has examples of each.

2. Track progress — mainly to motivate yourself

- Monitoring isn't just for compliance - it will help you learn and be a motivator. Worm counts, soil pits, yield maps: whatever works for you.

DEFRA (and lobbyists: NFU / CLA / TFA)

3. Back farmer-to-farmer learning

- Relaunch the Facilitation Fund with multi-year grants covering facilitator time and less paperwork.
- Pilot a 'BodemUp' scheme: fund soil advisors for 3 farm visits – via SFI?
- Consider funding attendance on *Ranching for Profit* style courses via SFI.
- Help build a public, national network of farmer group facilitators as a conduit for funding to farmers and feedback to DEFRA.

4. Secure SFI through the transition

- Fund evidence gathering to prove impact – e.g. use SAM1 SOM data; add insect monitoring to IPM1.
- Shift funding from 'tick-box' plans to advisor-led, map-based ones.

5. Prioritise R&D funding for farmer-led work

- Expand ADOPT - redirect funds from basic research or ag-tech if needed.
- Prioritise Facilitation Fund groups in ADOPT to build on existing traction.

AHDB

6. Rethink spending of levy funds

- Shift funding from AHDB-led programmes to farmer groups – more like Australia's GRDC model.
- Train facilitators to run farmer groups and win/manage grants.

7. Expand access to great learning experiences

- Bring proven formats like *Ranching for Profit* to more farmers – not just once a year.
- Bring over more charismatic 'superstar' consultants to inspire and motivate farmers.

Farmer group founders, facilitators, and boards

8. Seek diverse funding streams

- Aim to fund 2+ days a week facilitator time – not just project costs.
- Explore grants from water companies, foundations, ADOPT, InnovateUK; Facilitation Fund (if re-opened); and the Lottery.
- Consider creative long-term models like Australia's AMPS or Living Farm.

9. Connect with other groups

- Join the national facilitator network I'm helping co-ordinate to share both group-running tips and the best ideas discussed in each group.

10. Try more structured formats

- Consider the CREA model: one member presents each month, the rest listen, debate and feed-back.

Farm Consultants

11. Make benchmarking a key part of your offer

- Create fixed benchmarking groups (15–30 farms) with annual meetings – will build trust and long-term client loyalty.
- Use your access to clients' data to do the heavy lifting - clean, standardise, and present results clearly.
- Focus on 1-2 headline metrics (e.g. £/ha/mm rainfall) to catch attention and motivate changes.

Agronomists

12. Share best practice across farms

- Treat it as your duty to pass on good ideas between clients.
- Set up peer groups and benchmark actionable metrics like nitrogen use efficiency.

13. Go beyond inputs – become a strategic advisor

- The best agronomists now advise on soils, IPM, rotations, cover crops, natural capital and subsidies.
- Use SFI plans and visual tools to have deeper conversations – rather than just a tick box exercise.
- Let AI tools (e.g. John Kempf's) support you in providing advice / plans, so you can spend more time on crop walking and client relationships.

14. Collaborate with other agronomists to shape better research

- Explore the Danish model for collaborative research: competitor agronomy firms sharing data to shape better national trials.

Landlords

15. Encourage tenants to invest in soil health

- Offer long leases or capped rent rises for improved soil management.
- Where appropriate, co-fund capital works to reduce risks like erosion.

Researchers

16. Embrace 'farming systems' research and farmer-led trials

- Look into the impact researchers like John Kirkegaard have had and copy their methods.
- Join RAU's 'Bridging Fields' course to learn how to work with farmers.

Foundations / Philanthropists

17. Fund farmer group facilitation, not just projects

- Support farmer groups by funding ongoing facilitation costs.
- Follow model like the Lottery's funding of the Central Chilterns Cluster: giving facilitators autonomy, long-term backing, and little admin.
- Fund the creation of a national network of farmer group facilitators.

Policy developers in Wales, Scotland, NI and the EU

18. Take the best of England's SFI – and improve on it

- Copy SFI's 'pick-n-mix' structure with your own options / payment rates.
- Include caps to spread access.
- Pay for actions (not results) but require soil sample data to inform future iterations.
- Require any management plans to be map-based, and advisor-led, not just tick-box forms.

Agricultural Societies

19. Re-discover your original knowledge exchange role

- Help form and fund farmer group in your area.
- Offer farmers prizes again for innovations that deliver soil health benefits.

CHAPTER 9: AFTER MY STUDY TOUR

The Soil Benchmark platform launched ten days before I was awarded my Nuffield, and both have developed in tandem (Fig. 54).

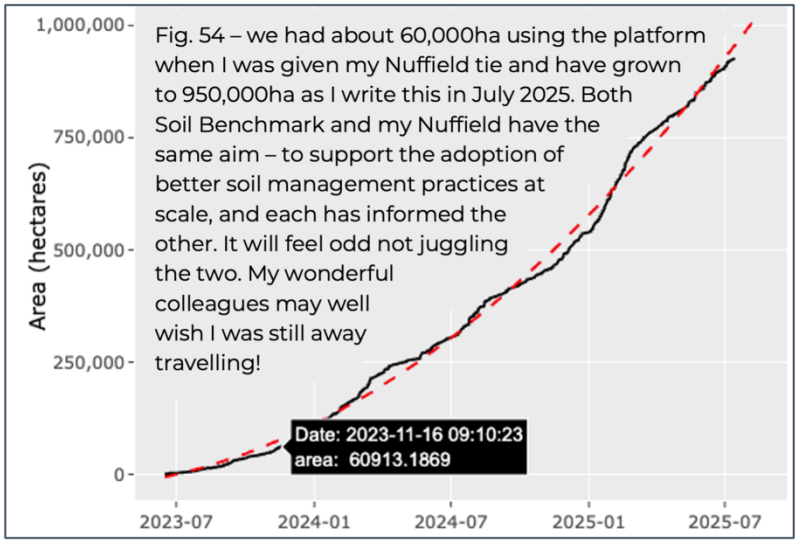

Fig. 54 – we had about 60,000ha using the platform when I was given my Nuffield tie and have grown to 950,000ha as I write this in July 2025. Both Soil Benchmark and my Nuffield have the same aim – to support the adoption of better soil management practices at scale, and each has informed the other. It will feel odd not juggling the two. My wonderful colleagues may well wish I was still away travelling!

My travels made clear that it's people – not tech - who drive changes in soil management on farm. But I think platforms like Soil Benchmark can help in two main ways: first, as a visualisation tool helping advisors and farmers have better conversations about risk; and second, simplifying compliance, so more farmers can access support schemes like SFI.

Nuffield has also shown me that there is similar, compliance-driven demand across Europe. In Australia, I met the team behind AgWorld, who replaced the legacy farm software platform there. We aim to play a similar role here with Gatekeeper.

Beyond Soil Benchmark, I want to support the growth of farmer groups in the UK. There's already a strong foundation to build on. The Groundswell session on farmer groups I pulled together this summer was a first step (Fig. 55). I hope Nuffield will play a role.

If you'd like to be involved do get in touch:

tom@soilbenchmark.com

Fig. 55 – L-R: Michael Gooden (VicNoTill), myself, Andrea McKenna (East Prince Agri-Environment Association), Tim Field (North East Cotswold Farmer Cluster) and Nick Marriner (Central Chilterns Farmer Cluster) post-Groundswell session

CHAPTER 10: ACKNOWLEDGEMENT AND THANKS

Most of all to my remarkable wife Cress for putting up with my absences, Nuffield visits on our honeymoon, and all your support over the last few years.

Ben, Henry, Sabrina, Grace, Chandra and Richard (Fig. 56) for growing the business – not just keeping it afloat – while I wasn't always around for the day-to-day.

Our customers, for bearing with me being slower than usual to come back to them while on my travels.

The incredibly kind people who had me to stay and who let me into their families lives: Lotte, Judith, Meinke, Sven, Antonio, Sally, Ash, Bec, Fiona, Trevor, Jen, Andrew, Treen, Michael (x2!), Ben, Andrew and Shannen. Thank you!

All those who let me visit and ask a million questions. I tried to take selfies with you all (see below) – my apologies if I forgot to do so!

To everyone who shared recommendations of who to meet along the way. Particular thanks to Penelope Bossom for her many Australian introductions, and to Jen Smith and Lotte van Dueren den Hollander for also taking me around!

My wonderful, hilarious Nuffield year group for their ongoing inspiration, support and friendship, in person and on the constantly renamed WhatsApp chat.

To Nuffield for giving me this life-changing opportunity. Soil Benchmark had not really got going and they took a big chance on me, which I'll always be grateful for.

To Innovate UK for my flights to Australia, EvokeAg tickets, and a great tour. Shona, Robert, Christos, thank you for bearing with me when I was AWOL on Nuffield visits.

Finally, to my generous sponsors, the Yorkshire Agricultural Society. Not only for funding my travels, but their farm shop treats, which my kind hosts all appreciated.

Fig. 56 - the whole awesome Soil Benchmark team at Groundswell 2025.
From L-R: me, Sabrina, Henry, Chandra, my co-founder Ben, Grace, and Richard

APPENDIX 1: LIST OF NUFFIELD MEETINGS

Name (* = Nuffield)	Organisation	Category	Country	Date	Meeting Type	LinkedIn
Joe Martlew	AHDB/NIAB	Academic	UK	13/12/23	In person	https://www.linkedin.com/in/joseph-martlew-316458a2/
Alex McBratney	University of Sydney	Academic	Australia	10/01/24	Virtual	https://www.linkedin.com/in/alex-mcbratney-2425818/
Roger Sylvester-Bradley	ADAS	Academic	UK	11/01/24	Virtual	https://www.linkedin.com/in/roger-sylvester-bradley-82424635/
* Anna Bowen	Andersons	Consultant	UK	11/01/24	Virtual	https://www.linkedin.com/in/anna-bowen-010097108/
Stuart Knight	NIAB	Academic	UK	12/01/24	Virtual	https://www.niab.com/about/people/stuart-knight
* Richard Heath	ZeroNetEmissions from Ag CSC	Government	Australia	18/01/24	Virtual	https://www.linkedin.com/in/richard-heath-211b3142/
Daniel Kindred	Ex- ADAS & Anglo American	Consultant	UK	23/01/24	In person	https://www.linkedin.com/in/drkindred/
Ian Gould	Oakbank	Consultant	UK	25/01/24	Virtual	https://www.linkedin.com/in/ian-gould-b815b99/
Anton Howes	Historian of Innovation	Historian	UK	25/01/24	In person	https://www.linkedin.com/in/antonhowes/
* Sam Watson Jones	Ex- Small Robot Company	Tech / Farmer	UK	26/01/24	In person	https://www.linkedin.com/in/sam-watson-jones-93725860/
Matthew Brearley	AHDB / Hutchinsons	Government	UK	30/01/24	Virtual	https://www.linkedin.com/in/matthew-brearley-66ba80213/
Torkild Birkmose	SEGES	Academic	Denmark	06/02/24	Virtual	https://www.linkedin.com/in/torkild-birkmose-22a61866/
Clive Bailye	The Farming Forum	Farmer	UK	06/02/24	Virtual	https://www.linkedin.com/in/clive-bailye-a5259b11/
* Kelly Pearce	WA Agricultural Research Collaboration	Grower Group	Australia	07/02/24	Virtual	https://www.linkedin.com/in/kelly-pearce-45255546/
* Catherine Marriott	Ex- Riverine Plains	Grower Group	Australia	08/02/24	Virtual	https://www.linkedin.com/in/catherinemarriott/
* Belinda Clarke	Agri-Tech E	Tech	UK	15/02/24	Virtual	https://www.linkedin.com/in/belinda-clarke/
Elizabeth Buchanan	Farmer	Farmer	UK	04/03/24	Talk	https://www.linkedin.com/in/elizabeth-buchanan-6737a8107/
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Belinda Bown	FWAG SE / Southern Stream Farmer Cluster	Grower Group	UK	24/04/24	Virtual	https://fwagsoutheast.co.uk/partner-belinda-bown/
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BASE UK Conference			UK	13/02/25	Event	https://base-uk.co.uk/
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EvokeAG			Australia	18/02/25	Event	https://www.evokeag.com/
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GRDC Perth Updates			Australia	24/02/25	Event	https://grdc.com.au/events/past-events/2025/02/grdc-grains-research-update-perth
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* Trevor Caithness	Farmer	Farmer	Australia	02/03/25	Stay	https://gippslandag.com.au/about/team-members/trevor-caithness
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* Michael Taylor	Farmer	Farmer	Australia	07/03/25	Stay	https://www.linkedin.com/in/michael-taylors-run-farmer/
* Ben Poschelk	Farmer	Farmer	Australia	08/03/25	Stay	https://www.linkedin.com/in/benposchelk/
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Namoi Soil Symposium			Australia	12/03/25	Event	https://landcare.nsw.gov.au/groups/gunnible-landcare-group/namoi-soil-symposium/

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APPENDIX 2: MY TRAVEL PICS

Brazil, Argentina, Chile

Netherlands, Germany, Denmark, Norway

Queensland, Western Australia (Round 1), South Australia, Victoria

Gippsland (SE Victoria), Canberra, New South Wales

New South Wales (continued), Western Australia (Round 2!)

APPENDIX 3: HISTORY OF AGRICULTURAL KNOWLEDGE EXCHANGE IN THE UK

Before the start of the second agricultural revolution in the late 18th Century, there was no system for knowledge exchange in agriculture, let alone for soils specifically. Instead, changes in soil management were driven largely by changes in market fundamentals. For instance, in the late Middle Ages, there is evidence that over-exploitation of soils, particularly in more densely populated arable areas like southern England, led to declining fertility. Early 14th Century yield records from Cuxham in Oxfordshire (still owned today, as it was then by Merton College, Oxford!), show how increased arable cultivation led to declining yields of barley[60]. Nutrient depletion of the soils, perhaps from a reduction in the availability of livestock manure, is a likely cause. The Black Death of the mid-14th Century, catastrophic in human terms, may have paradoxically improved soil health. As the population collapsed, less land was needed for crops, and marginal arable fields reverted to pasture. This allowed fertility to recover. But these changes were driven largely by population dynamics, rather than changing farming knowledge.

In the post-enclosure period from the 18th century onwards, a different dynamic took hold. For the first time, many farmers could directly benefit from investing in their soil. Enclosure gave them secure tenure or private ownership, so returns from liming, drainage, marling, manuring and crop rotation were no longer shared across a village[61]. The result was a wave of experimentation – and sharing of the knowledge gained. (Today, short-term tenancies were often raised on my travels as presenting a similar issue — holding back the incentive to invest in soil health.)

Fig. 57 – 'Woburn Sheepshearing' by George Garrard – a view of the large public sheep shearings hosted by Francis Russell, the 5th Duke of Bedford. It includes 88 portraits of many of the leading 'agricultural improvers' of the day, including Arthur Young and Coke of Norfolk.

[60] https://www.bahs.org.uk/AGHR/ARTICLES/45n2a1.pdf
[61] https://www.bahs.org.uk/AGHR/ARTICLES/41n2a1.pdf

This new age of improvement ushered in now-famous figures such as Charles "Turnip" Townshend and Thomas Coke of Norfolk. Townshend popularised the four-course rotation, using turnips to restore soil fertility. Coke, based at Holkham, held local sheep shearings from the late 1770s where he shared his new methods, from the use of cocksfoot and lucerne to sheep breeding. Coke expanded these in the 1800s, following the lead of the 5th Duke of Bedford[62], who in 1797 had begun inviting landowners from across England to his own large sheepshearings at Woburn each year (Fig. 57). Soon visitors from as far as Russia and America were visiting Holkham. All three men played a key role in spreading practical innovations. (Both Townshend and Coke's descendants, still at Raynham and Holkham respectively, remain amongst the most innovative farmers in the country, as members of Catalyst Farming, a group covered earlier in this report.)

Their influence was amplified by the growing number of agricultural societies emerging across Britain in the late 18th and early 19th Centuries. The first known was the Salford Agricultural Society, founded in 1768[63], which held what is believed to be the earliest agricultural show. Others soon followed, including the Royal Bath and West of England Society (1777)[64], the Royal Cornwall Agricultural Association (1793)[65], the Three Counties Society (1797)[66], and the Yorkshire Agricultural Society, whose founding show in 1838 would later evolve into the Great Yorkshire Show (Fig. 58), and who are the generous sponsors of my Nuffield Scholarship. These societies promoted new farming practices, rewarded innovation, and created spaces for peer learning. Alongside developing the concept of the modern agricultural show, many used prizes to encourage experimentation in soil management, crop trials, and livestock breeding. The principle of gentle competition still drives innovation and adoption today in modern farmer groups (see Chapter 5).

Fig. 58 – cattle parade at the Great Yorkshire Show, 1954

By the early 19th century, this grassroots activity had grown into a national infrastructure for knowledge-sharing. The Royal Highland and Agricultural Society of Scotland, founded in 1784, was among the earliest — though its national show only began in 1822. In England, the Royal Agricultural Society of England was established in 1838. The Royal Welsh Agricultural Society followed in 1904. These national shows provided farmers with opportunities to meet, compare results, and see new ideas in action. Together with their county-level counterparts, they

[62] https://bahs.org.uk/AGHR/ARTICLES/47n2a4.pdf
[63] https://merl.reading.ac.uk/blog/2020/05/country-shows/
[64] https://www.bathandwestsociety.com/about-us
[65] https://www.royalcornwallshow.org/rcaa
[66] https://threecounties.co.uk/agricultural-society/about-us/

became vital platforms for spreading practical innovation, often years before ideas were written up in journals or textbooks.

This same spirit drove the work of early agricultural writers. Arthur Young's tours of Britain in the late 18th century, along with observations from European visitors like the Rochefoucauld brothers[67], helped document and disseminate innovative practices. They read remarkably like Nuffield reports! Young later became secretary of the Board of Agriculture, founded in 1793, which produced county-level surveys of soils, crops and farming methods across Britain. These surveys, partly government-funded, provided some of the earliest information on regional soil management and fertility, showing large discrepancies between adoption of things like the four-course rotation between counties.

Knowledge exchange was also embedded in the emergence of formal research. Rothamsted Experimental Station, founded by Lawes and Gilbert in 1843, was the world's first agricultural research institute. Its long-term field trials transformed scientific understanding of fertility and nutrient management. Much of this early extension effort came through journals and reports — written for an audience of 'improving' landowners and farmers who subscribed to publications and debated findings at society meetings.

When the Second World War began, the British government took unprecedented steps to increase domestic food production. Imports were threatened by German U-boats, and the nation needed to feed itself. A vast, centralised advisory apparatus sprang into life: War Agricultural Executive Committees, or "War Ags", were established in each county[68]. Composed largely of local landowners and farmers, War Ags could compel landowners to plough up permanent pasture (Fig. 59) — with most counties given a target of converting at least 10% of their grassland to arable cropping. They could inspect farms, issue directions, override tenancy agreements, and in extreme cases even take over the management of "incompetent" farms.

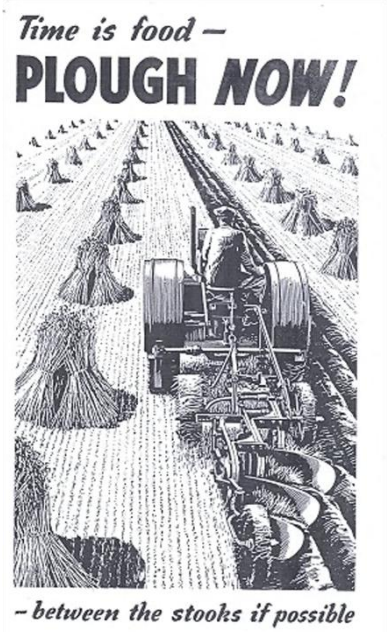

Fig. 59 – WW2 poster giving advice to farmers – if they didn't follow it, the 'War Ag' could force them to do so

The emphasis was mainly on short-term land use change — increasing the cropped area — more than improving how land was managed. In fact, in many cases this reversed previous soil protection practices. War Ags often overrode lease clauses that required tenants to maintain fertility, manure fields, or retain straw on-farm, accelerating nutrient

[67] https://www.cambridge.org/mv/universitypress/subjects/history/british-history-after-1450/frenchman-england-1784-being-melanges-sur-langleterre-francois-de-la-rochefoucauld
[68] https://www.bahs.org.uk/AGHR/PDFs/AGHR_FLOF_supplement.pdf

depletion. Although these efforts were undeniably successful in boosting wartime output, they entrenched a mindset of extraction over stewardship — with long-term implications for soil health.

In 1946, in the wake of the 1944 Agriculture Bill, the government launched the National Agricultural Advisory Service (NAAS). This marked a turning point: for the first time, farmers across England and Wales were guaranteed equal access to technical advice and scientific research, wherever they were. It was a centralised, state-backed network dedicated to spreading best practice — and lifting British agriculture out of its pre-war stagnation, where national wheat yields had rarely passed one ton per acre.

NAAS initially focused on helping farmers make better use of what they already had. But by the 1950s and '60s, as Britain opened up to global markets and embraced post-war prosperity, the focus shifted to efficiency, output, and modernisation. There were major breakthroughs in plant breeding, livestock genetics, machinery, fertilisers, and crop protection — all of which depended on the trusted, national infrastructure NAAS provided to explain and embed them at scale.

In 1971, NAAS was reorganised and rebranded as ADAS. It began to commercialise some of its services in the 1980s, charging for advice, and ultimately was privatised in 1997. That marked the end of state-funded, universal farm advisory services in England and Wales (although the Farm Advisory Service continues to exist in Scotland). This pattern — from public to private — had been repeated across many other countries I visited including Australia and the Netherlands. Throughout the last 30 years, as government spending has retreated, other methods of knowledge sharing have proliferated, which I discuss in Chapter 5 of this report.

In England, the Farmer Clusters described above started to emerge after the 2010 Lawton Report[69], which encouraged collaboration between farmers to restore farmland biodiversity. Under the Coalition and Conservative governments from 2010-2024, DEFRA supported these as a key part of the post-Brexit transition away from the old Common Agricultural Policy. As well as the Facilitation Fund discussed in Chapter 5, the Landscape Recovery scheme[70] has offered a route for funding Cluster Group projects. Time will tell if the Labour government continues this investment in Clusters, or if they see them as simply a pet project of the last government.

[69] https://www.gov.uk/government/news/making-space-for-nature-a-review-of-englands-wildlife-sites-published-today
[70] https://defrafarming.blog.gov.uk/2025/08/29/landscape-recovery-first-projects-move-into-delivery-phase/

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