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For Peat's Sake! Do We Need A New Approach To Peatland Agriculture?

Written by:

Harry Winslet NSch

August 2025

A NUFFIELD FARMING SCHOLARSHIPS REPORT

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Date of report: August 2025

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

Title	For Peat's Sake! Do We Need A New Approach To Peatland Agriculture?
Scholar	Harry Winslet NSch
Sponsor	Royal Norfolk Agricultural Association
Objectives of Study Tour	Visit the world's peatlands to understand their agricultural significance. Explore the similarities and differences between peatland agriculture in the UK vs. the rest of the world. Understand what alternatives exist for horticulture to reduce peatland dependence. Explore experimental and novel trials to reduce environmental cost of peatland agriculture. Understand how agricultural policy and finance shapes their use around the world.
Countries Visited	UK, Brazil, Netherlands, Germany, Denmark, Finland, Estonia, Indonesia, Malaysia, Taiwan, Japan, Poland, Italy, Canada.
Messages	**Peatlands are vital but fragile** – they cover less than 4% of UK farmland, produce 40% of field vegetables but contribute 3.5% of domestic greenhouse gases. **UK reliance is exceptional** – intensive horticulture on peat is the exception, not the rule. **Alternatives exist** – hydroponics in Finland, community supported agriculture systems in Canada, vertical farms in Asia all show viable non-peat models. **No silver bullet** – every option carries trade-offs; the answer lies in a mosaic of restoration, wetter farming, amendments and regenerative systems. **Markets must adapt** – supermarkets demand uniformity; resilient supply chains can absorb imperfection and reduce pressure. **Policy and finance are decisive** – farmers will change if risks are shared.

EXECUTIVE SUMMARY

Peatlands are some of the most productive landscapes in the UK. They account for less than 4% of our farmland yet produce up to 40% of the nation's fresh vegetables. For generations they have been valued by growers and supermarkets for their uniformity, ease of cultivation and reliability. But this productivity comes at enormous cost. Once drained, peat soils oxidise, releasing millions of tonnes of carbon dioxide into the atmosphere. In the UK, peat soils emit 23.1 million tonnes of CO_2e annually, around 3.5% of our total greenhouse gas emissions. This makes drained peat one of the largest sources of emissions, and places us at a crossroads: continue with short-term gain, or transition towards systems that balance food security with climate goals.

This study has taken me to 14 countries across Europe, Asia, and the Americas, visiting farmers, researchers and communities working on peatlands. It has shown that the UK's horticultural dependence on peat is unusually high. Elsewhere, peatlands are more often used for grazing, forestry, or rice production, each with its own challenges of subsidence, emissions or declining productivity.

Importantly, I found that alternatives do exist. In Finland, hydroponic systems allow for highly productive salad production without reliance on peat, achieving yields 20 times greater per hectare than UK field systems. In Canada, small, diversified farms linked to strong CSA models can thrive on mineral soils. In Asia, vertical farms and greenhouses are producing high-value crops year-round, while in the Netherlands, pixel cropping management shows how resilience and diversity can be embedded into outdoor systems. Together, these examples demonstrate that vegetable production need not depend on drained peat soils.

Yet each alternative comes with trade-offs. Hydroponic systems rely on synthetic fertilisers. Regenerative agroforestry or wetter farming reduces yields and demands new markets. Novel amendments such as biochar show promise but remain under-researched. What is clear is that there is no silver bullet, the solution must be a mosaic of restoration, wetter farming and regenerative practices, all supported by finance and policy.

Farmers are not resistant to change, but they cannot bear the risks alone. Current UK schemes incentivise restoration, leaving productive peatlands unsupported. Internationally, the lessons are clear: "carrots" such as Dutch infrastructure subsidies are far more effective than "sticks." Markets, too, must adapt. Supermarket supply chains drive demand for uniformity; more resilient systems such as farmers' markets and direct sales can absorb imperfection, reduce waste and take pressure off peatlands.

This report concludes with six recommendations: prohibit further exploitation of intact peatlands; invest in national water storage; replicate not for profit farmer-

led collaborative models such as Fenland SOIL; expand future peatland opportunity mapping; fund long-term applied research into regenerative systems; and align supermarket procurement with sustainability.

Peatlands cannot be written off as relics, nor exploited indefinitely as expendable soils. They are vital carbon stores, biodiversity refuges and food-producing landscapes. If we are willing to change the narrative, share the risks, and invest in alternatives, we can create a future where peatlands sustain both food and climate security.

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DISCLAIMER

The opinions expressed in this report are those of the author alone and not necessarily those of the Nuffield Farming Scholarships Trust, of the author's sponsor, or of any other sponsoring body.

Many of the concepts described in Chapter 6: On Farm – The Future Of Peatland Agriculture are still in progress. No details of these trials is meant to be final, and their inclusion is as accurate as can be at the time of writing.

Some policy options discussed in Chapter 7: Supportive Policy and Finance are still in the discussion and implementation phase, passing through different stages of parliamentary procedure. None are discussed to mislead and are as accurate as can be at the time of writing.

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CHAPTER 1: PERSONAL INTRODUCTION


Figure 1: The author, Harry Winslet

I was born in the heart of London, and for much of my early life it seemed inevitable that I would follow a medical career. It was only during my undergraduate degree, writing my dissertation on understanding water-use efficiency in plants that I began to look towards a different path. Not wanting to return to London after my masters' degree in parasitology, I was offered an opportunity in agriculture, an industry that was at that time completely unfamiliar to me. I didn't own a pair of boots and had never set foot on a farm, but fortunately, I knew how to run a trial.

Fast forward seven years and I have spent my entire professional career with G's, beginning on the graduate programme as a trials coordinator and subsequently as Future Farming Manager. G's is one of the UK's largest fresh produce companies, farming over 17,000 hectares across five countries, and producing a significant proportion of the UK's salads. In the UK, 4,000ha of this growing takes place on peatlands in the Cambridgeshire fens, particularly for the production lettuce and celery.

While the business has invested heavily in a transition to regenerative agriculture, I was becoming increasingly concerned by the long-term viability of farming on our peat soils, and so began the beginning of my Nuffield story. This scholarship has given me the chance to explore that concern globally, and to learn from others striving to balance food production with the need to protect these fragile landscapes. I remain deeply grateful to the colleagues, farmers, and mentors who welcomed me into this industry and patiently shared their knowledge with someone who began with no farming background at all.

CHAPTER 2: BACKGROUND TO MY PROJECT

For millennia, peatlands have been places of mystery and wonder. In Denmark, they have given up the secrets of the bog bodies, humans sacrificed to mythical places neither land nor sea, whose remains were preserved in their acidic waters. In Ireland, they were used in warfare, their swampy grounds both weapon and defence. In a serendipitous moment, while reading Manchán Magan's wonderful *Listen to the Land Speak*, I came across *Éile,* an otherworldly deity whose beauty would lure men to their deaths in the Bog of Allen from which her home in Croghan Hill stood proud, and who's name derived that of my own Irish grandmother, *Eileen*.

Figure 2: The Tollund Man, Silkeborg Museum – A bog body exhumed in 1950 by peat cutters Emil and Viggo Højgård in Bjældskovdal bog, Denmark. Photo: author's own.

Yet for much of the modern era, the narrative has shifted. Once seen as landscapes of life, lore and sustenance, peatlands came to be regarded as dark, inhospitable places where people go missing, where livestock are lost, where the land itself seems to swallow those who wander into it. If we are to conserve and farm these landscapes more sustainably, the story we tell about peat must change. We need to move beyond myths of decay and danger, and towards a positive vision of peatlands as carbon stores, biodiversity havens and productive agricultural landscapes.

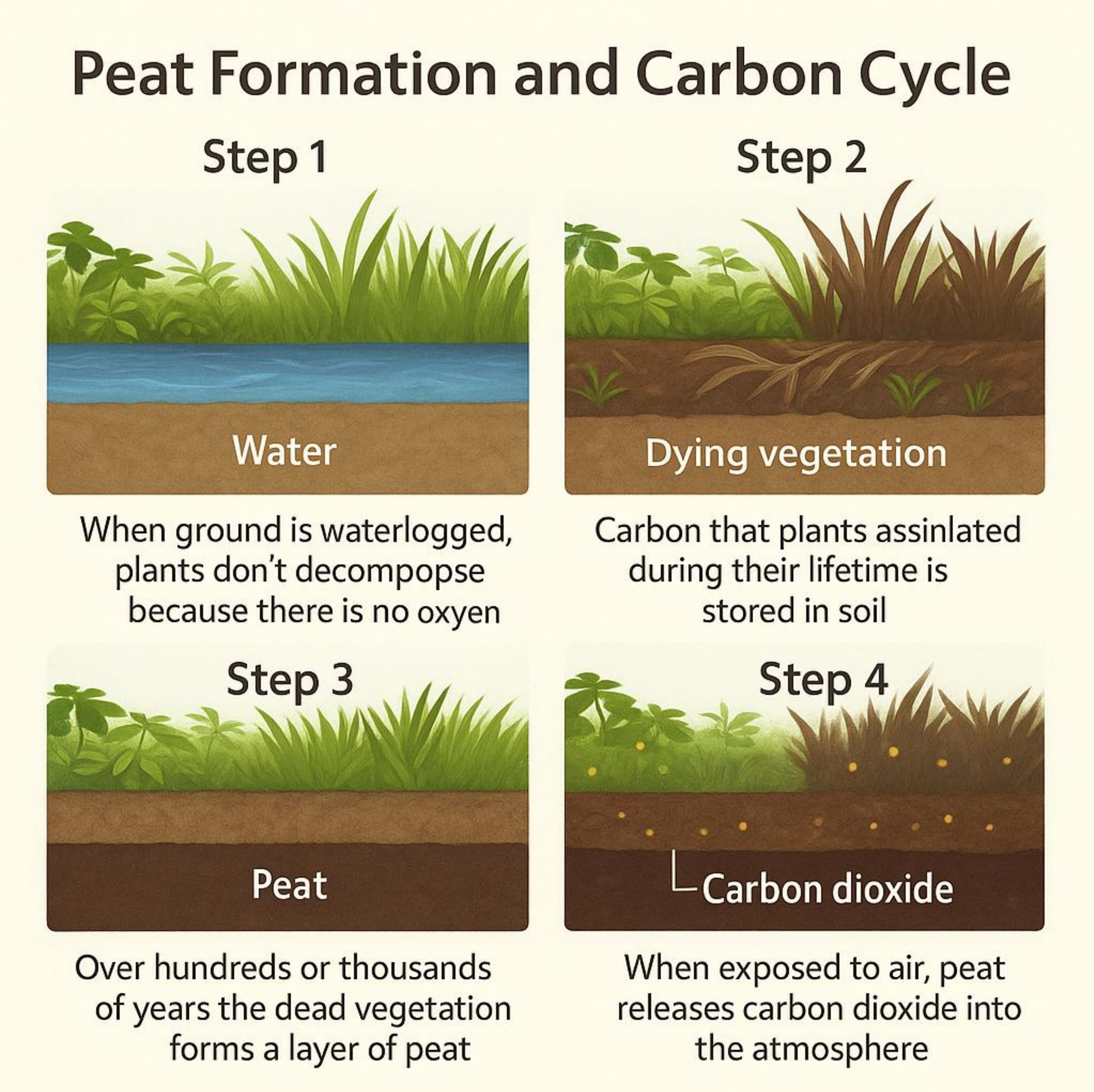


Figure 3: The formation of peat. Graphic from the BBC. Used under a UK Copyright Exception.

The scale of the challenge is clear. In the UK, decades of drainage for agriculture have brought both enormous productivity and enormous cost. Cultivated peat soils underpin some of our most important horticultural regions, producing up to 40% of the nation's fresh vegetables and salads on a footprint of little more than 4% (WWF, 2023). They are valued by farmers and the food supply chain for their uniformity, ease of working, and the consistency they bring to mass production systems that serve our supermarkets. Free of stones, easy to cultivate and highly fertile, drained peatlands have been an agricultural success story; but one that comes with a hidden bill.

Once peat is drained, it oxidises. Every year, millions of tonnes of carbon are lost to the air as CO_2. According to the government, peat soils in the UK emit an estimated 23.1 million tonnes of CO_2e annually, accounting for around 3.5% of our total emissions (UK Parliament, 2022). At the same time, subsidence means that once-flat fields sink lower into the landscape, requiring ever greater investment in pumps, drains and water management just to keep them farmable. This is a system locked into decline.

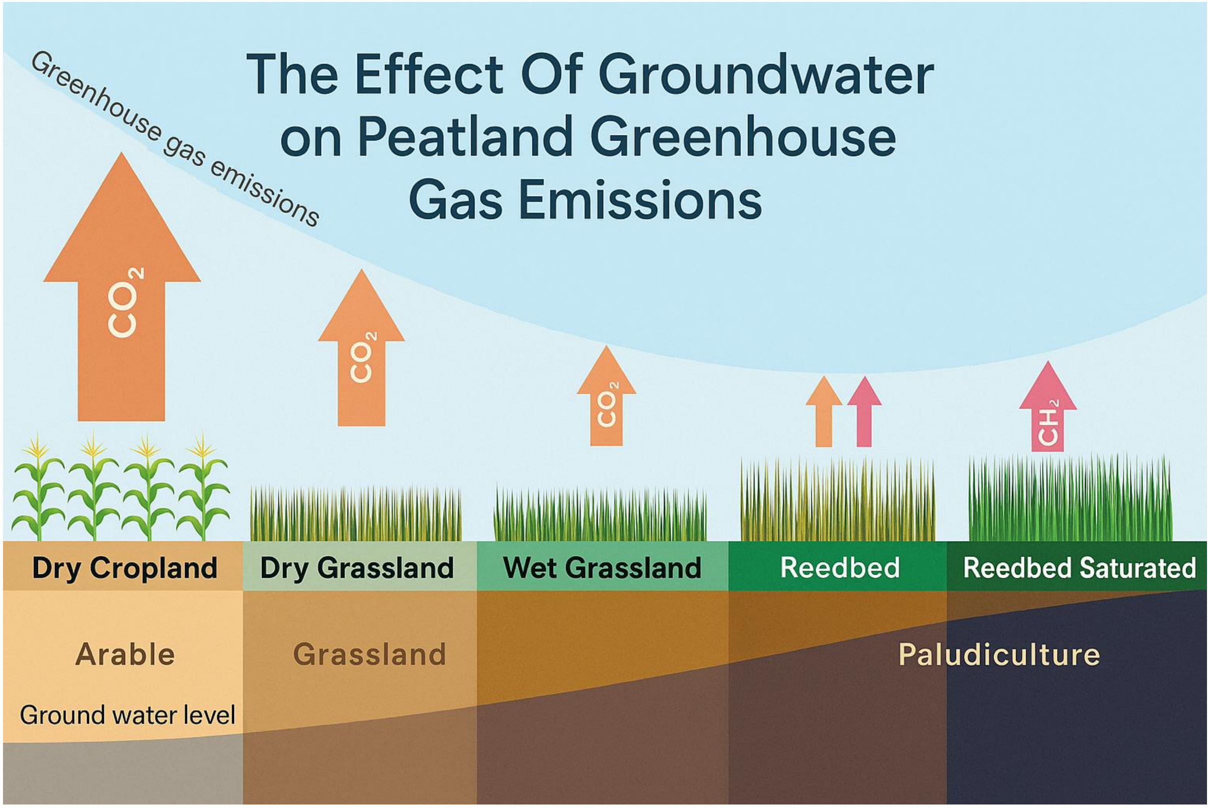


Figure 4: The effect of groundwater drainage from peat soils on greenhouse gas emissions. Graphic from the Lowland Agricultural Peat Task Force, Chair's Report available at www.gov.uk/government/publications. Used under a UK Copyright Exception.

The paradox is clear. The very soils that have been so productive are also those that are disappearing fastest. Agriculture has benefited from peat's extraordinary qualities, but the model has become one of short-term gain at long-term expense. Even the most recent peat maps underestimate the extent of the problem, failing to capture how much soil has already been lost, or how degraded much of what remains has become (Natural England, 2025).

This leaves us at a crossroads. Peatlands cannot be written off as relics of a bygone era, nor can they be managed as if business as usual will continue indefinitely. They produce too much of our food, store too much of our carbon, and underpin too many rural economies to be ignored. To sustain farming and food security while addressing climate change, we must rethink how we manage and farm these landscapes.

The following report explores this status quo: what we are doing on peat today, what it costs us in terms of emissions and soil, and what it provides in terms of food and livelihoods. It asks whether there are viable alternatives that can sustain both farming and the climate, and whether new narratives, new practices and new partnerships can change the fate of these fragile yet vital landscapes.

CHAPTER 3: MY STUDY TOUR

My study tour took shape somewhat in the somewhat haphazard fashion of: "Find a map of the worlds' major peatlands, and find any reason why I couldn't, shouldn't or wouldn't visit them. "

Global Distribution Of Peatlands

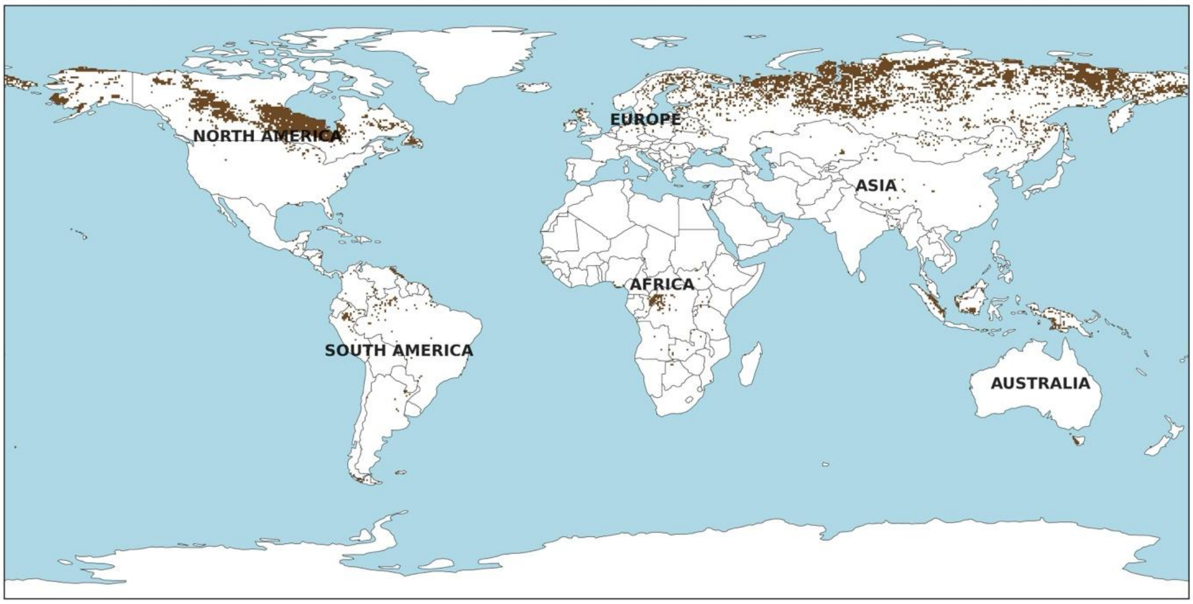


Figure 5: Global Distribution Of Peatlands. Graphic from Grida.no. Used under a UK Copyright Exception.

My largest limitation was geopolitical uncertainty. The ongoing assault on Ukraine made venturing to Russia impossible, and the uncertainty around the safety of travel to the DRC meant my final study plan finally looked as follows:

Dates	Location	Period	Rationale
November 2023-June 2025	UK	18 Months	Domestic travel to conferences, farms and demonstration sites.
March 2024	Brazil	2.5 Weeks	CSC in Campo Grande/Bonito & Post CSC Tour to Pantanal Wetlands.
June 2024	Netherlands	1.5 Weeks	Opportunity to visit Dutch farms using productive peatlands for world-class dairy operations.
June 2024	Germany	1 Week	Visit Greifswald Mire Peat Research Centre / Neukalen demonstration sites and farmers managing dryland peat bogs.
June 2024	Denmark	1 Week	Visits to museums housing peatland artifacts & academic research.

July 2024	Finland	2 Weeks	Possibility to visit significant forested peatlands and restoration sites, and non-peat based productive horticulture.
July 2024	Estonia	1 Week	Historically largest peat-cutting region in Europe, now focussing on restoring previously damaged sites.
September 2024	Indonesia (Kalimantan)	2 Weeks	Visiting peatland smallholders and custodians of peat swamp forests. Unsuccessful in visiting large palm plantations.
September 2024	Malaysia (Sarawak)	2 Weeks	Visiting Dr. Lulie Melling at TROPI & Swinburne University, and the beginning of GFP.
September 2024	Taiwan	1 Week	Global Focus Programme.
October 2024	Japan	1.5 Weeks	Global Focus Programme.
October 2024	Poland	1 Week	Global Focus Programme.
October 2024	Italy	1 Week	Global Focus Programme.
May – June 2025	Canada	5 Weeks	Trips across non-peat horticulture through NS & PEI to other significant vegetable growing peat region in QC & ON.

CHAPTER 4: PEATLANDS – A GLOBAL CRISIS

4.1 A Shared Responsibility

Sometimes it's nice to feel you're not alone. In this instance, that wasn't the case. The crisis facing UK peatlands is far from unique. Across the world, drained peatlands are among the most concentrated sources of greenhouse gas emissions from agriculture, releasing carbon that has been stored for millennia.

The International Union for Conservation of Nature (IUCN) report found that while peatlands cover only 3–4% of the earth's land surface, and of those only 12% are drained (equivalent to a total ~0.4%), they account for around 4% of **all** anthropogenic greenhouse gas emissions (United Nations Environment Programme (UNEP), 2022; IUCN, 2023).

This story was familiar everywhere I went. In Estonia, nearly 20% of national greenhouse gas emissions come from drained or cultivated peat soils. Much of this is linked to agricultural use, either for cultivated farming or peat cutting, yet policy and incentives continue to lag behind the urgency of the issue. In Finland, peatlands under forest cover are also a major source of emissions. What is counted as carbon-neutral forestry masks the reality that drained forest peatlands steadily leak CO_2 and nitrous oxide, undermining the country's climate ambitions (Myllyviita et al., 2024).

Figure 6: A Toyota Hilux laden with fresh palm fronds, awaiting weighing at the Serian Oil Mill in Sarawak, Malaysia. Photo: author's own.

In the tropics, the scale is even more dramatic. In Sarawak, Malaysia, research at Tropical Peat Research Institution (TROPI) showed how peatlands managed and drained for plantation crops like oil palm emit 500 million tonnes of CO_2e. Visiting the Serian Oil Mill, sitting in a convoy of 1990's Toyota Hilux trucks, axels buckling under the weight of bumper palm oil crops, underlined just how dependent much of the region's economy remains on peat-based production, even as land subsidence exacerbates the seasonal risk of fire and flood. Finally, in Kalimantan, Indonesia, the failure of the Mega Rice Project, the clear-felling of one million hectares of pristine peatlands for the production of rice, produced up to 40% of global greenhouse gas emissions in late 1997, and has left a legacy of drained, fire-prone wasteland (Goldstein, 2016).

Globally, the story is the same: wherever peat is drained, the carbon follows.

CHAPTER 5: THE CURRENT STATE OF PEATLAND AGRICULTURE

5.1 Horticulture on Peatlands

Peatlands have long been favoured for UK horticulture. Their deep, stone-free soils are easy to work, retain water well, and provide uniformity valued by supermarkets and large-scale producers. Nitrogen mineralisation in drained peat offers high fertility allowing reliable yields of vegetables such as carrots, onions and salad crops, which has long been exploited by major horticultural providers. For these reasons, the Cambridgeshire and Lincolnshire Fens have long been seen as the breadbasket of the UK, contributing over one third of the UK's fresh produce supply, and contributing over £3.1b to the regional economy (WWF, 2023).

Crop Type	Peat Condition Deep	 Wasted
Vegetables	16,000	37,300
Cereals	21,100	65,500
Oilseed Rape	1,300	4,400
Grassland	59,400	35,200
Total	**100,500**	**150,800**

Figure 7: Approximate areas of lowland peat in Great Britain under agricultural classes in 2021, separated by deep and wasted peat. From WWF. Used under a UK Copyright Exception.

Given this, I expected to find peatland horticulture replicated widely abroad. Yet the reality was very different.

The only significant example I found was in Canada's Holland Marsh, Ontario. Here, growers such as Munshaw Farms and Hillside Gardens cultivate a similar array of peatland crops to our own, growing carrots, onions, celery and lettuce across 9,000 acres of drained peat. These systems looked incredibly familiar, where carrot yields can exceed 100 t/ha, but farmers face challenges of subsidence, soil loss and, increasingly, rising land prices.

Elsewhere, production was patchier. In Finland, at Karotia Oy, carrots are grown on deep drained peat, with average yields around 65–80 t/ha across 250 hectares, emitting on average 35T CO_2e annually, a number familiar to many UK peatland horticulturalists. Despite their productivity, head grower Artur Hyytiäinen expressed a similar concern to our domestic growers, citing increasing drainage costs, land subsidence, and the long-term prospect of cropping on these soils.

In Indonesia, I saw only very small-scale horticulture on peat. At Nina and Dodo's mixed farm in Banjar Baru, South Kalimantan, and at Rusmanto's holding in Kampalalang, Central Kalimantan, vegetables were grown alongside livestock and forest on plots of less than two hectares. Such examples are rare, however. The overwhelming commercial use of tropical peatlands remains oil palm plantations, which dominate across both Indonesia and Malaysia.

Globally, horticulture on peatlands is the exception rather than the norm, making the UK's reliance on them stand out as a surprisingly unique challenge.

Figure 8: Fields of onions, spinach, chillies, tomatoes and celery grown on deeply drained peat in Banjar Baru, South Kalimantan, Indonesia. Photo: author's own.

5.2 What, Then, If Not Horticulture?!

If horticulture is the hallmark use of peatlands in the UK, where 20% of our peatlands are growing vegetables in any given year, the picture elsewhere is markedly different (WWF, 2023). Across my travels, commercial peatland use tended to focus on grazing, forestry and monoculture plantation systems, with only patchy horticultural activity as we would recognise it.

5.2.1 Grazing Systems

In north-west Europe, many peatlands are maintained under grass for grazing. In the Netherlands, farmers including Joost van Schie, Nuffield Scholars Judith (2020) and Rick (2018) de Vor, and members of WijLand cooperative scheme were running dairy herds on drained peatland pastures. While these systems rely heavily on infrastructure subsidies, the ability to control water tables on narrow "polders" without affecting the productivity of these soils means that dairy grazing remains one of the few viable economic uses of peatland in the Dutch context.

Figure 9: An aerial photograph of the Dutch polders system. Photo: Commonlands https://commonland.com/ Used under a UK Copyright Exception.

In Germany, I observed contrasting approaches. At Hans-Joachim Mylius' farm, cattle grazed grass grown on the "moor" while arable crops were confined to mineral soils where productivity was higher and more secure. Steffen Düring similarly described growing maize and cereals on mineral soils while keeping the "moor" primarily for lower-value forage — acknowledging peat's declining productivity compared to sandier, more productive, mineral land.

In Denmark, research presented by Claudia Nielsen at Aarhus University and supported by trials from Johan Emil Kjær at the University of Copenhagen showed that the most productive and climate-friendly outcome on Danish peat often came from wetter grazing systems. Grazing cattle not only improved CO_2 sequestration but also supported biodiversity, offering a model where extensive livestock might fit with environmental management.

Further east, in Estonia, Johannes Haasma highlighted the struggles of cropping peat soils effectively. For his herd of 800 Holstein dairy cows, maize silage grown on mineral land outperformed that on peat year after year. Across the country, productivity on peat was consistently poorer, yet farmers continue using it where alternative land is unavailable.

Even outside Europe, grazing emerges as a theme. In Brazil, in the Pantanal wetland, land that had previously been consistently reliable at producing rice crops is gradually being put under grass, increasingly due to failures in the seasonal rains that have resulted in the catastrophic fires of 2024, made 40% more intense due to anthropologically linked climate change (Barnes et al. 2024).

5.2.2 Forest Systems

In the boreal regions, drained peatlands are dominated by forestry. In Finland, I encountered Professor Jyrki Hytönen, a researcher on peatland forest systems, whilst on a hiking expedition across a swamp in Vesanto. Prof. Hytönen explained that Finland has some of the largest peatland forests in Europe, where plantations providing pulpwood and timber are often supplemented with ash from wood fired furnaces, whose addition in some instances can promote tree growth significant enough to offset the emissions from the drained peat (Hytönen, 2012).

In the tropics, peatlands, too, are overwhelmingly used for plantations. In Malaysia, my visit to Dr. Lulie Melling at TROPI highlighted the sheer dominance of oil palm plantations, where oil plantations cover 5.6m hectares, 15% of the countries land area and 66% of its agricultural production (Ali Hasan et al 2024).

5.2.3 Rice Systems

Rice was another recurring use. As well as Brazil's Pantanal region, where the uncertainty over seasonal rains has led to a dwindling in the number of hectares under cultivation, in South Kalimantan, Indonesia, I saw rice grown in the Gambut region (*Gambut* being the Bahasa Banjar, the local dialect spoken in South Kalimantan, for "*Peat*"). Here, smallholders cultivated peatland paddies but productivity was fragile and fields highly vulnerable to subsidence. At the nearby rice mill and factory, the challenges of scale were clear: despite government subsidies, processing capacity was underused because yields from surrounding peatlands could not consistently meet demand. Local farmers described recurring problems of soil acidification, stubble burning fines, and costly inputs that eroded already slim margins. Much of this production was channelled through the "Beras Gambut" cooperative, a branding initiative designed to give identity and added value to rice grown on peat. While the cooperative offered farmers a stronger market position and cultural recognition of their peatland heritage, it also highlighted the tension between conserving fragile soils and sustaining a crop so deeply embedded in the national diet.

Across these examples, a clear pattern emerged. Outside the UK, peatlands are rarely used for intensive horticulture. Instead, their main commercial uses fall into three main categories: grazing, forestry / plantations, and rice. Each of these comes with challenges of declining productivity, subsidence, or emissions, yet they persist as dominant models in their respective regions.

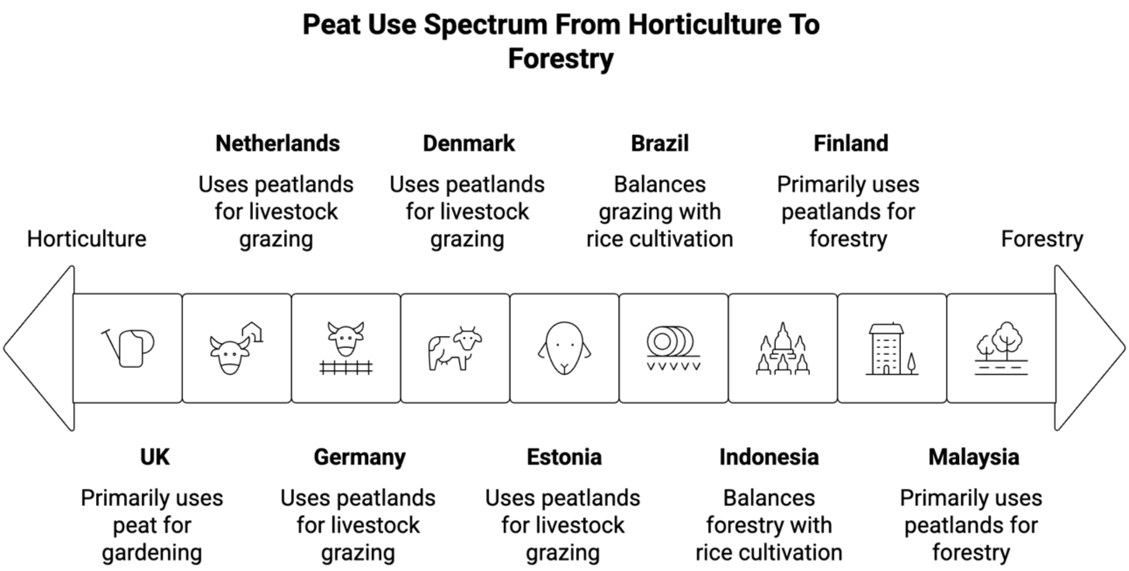


Figure 10: The use of peatlands globally, by primary land use, from the countries I visited. Graphic: author's own produced by Napkin AI.

5.3 Non-Peat Based Horticultural Systems

When I began this journey, I assumed that productive horticulture was almost synonymous with drained peat. In the UK, where such a large proportion of our field vegetables are grown on peat, it felt logical to believe that vegetables could only be grown this way. Yet what I found abroad challenged this assumption. Productive non-peat based systems, both outdoors and indoors, were thriving. Together, they provide a perspective on how UK horticulture might one day reduce its dependence on drained peat.

5.3.1 Outdoor Systems

In the Netherlands, at the Wageningen University Plant Research Centre in Lelystad, Crop Protection Researcher Hilfred Huiting demonstrated pixel cropping to me, a system of diverse, small vegetable units, including potatoes (50T/Ha Yield), onions (50T/Ha Yield), carrots (70T/Ha Yield) and sugarbeet grown on mineral soils. The system mimics ecological resilience, combining crops in tight rotations of 3m and 15m wide with careful nutrient (40Kg/Ha Nitrogen inputs) and pest management (Insecticide-free). The productivity achieved per hectare was competitive with monoculture peatland systems, but without the associated subsidence and emissions.

In Canada's Nova Scotia province, smallholders offered another model. At Abundant Acres, David and Jen Greenberg farm nine hectares of organic vegetables on mineral soils, generating over C$2m in revenue while sustaining more than 500 CSA shares. This success led to them opening a retail store in the provincial capital, Halifax, giving them the opportunity to access an urban market 75 km from their farm in rural Centre Burlington, NS. Across the province, Josh Oulton (2018 Nuffield Scholar) and his wife Patricia run Taproot Farms, a mixed system with polytunnels, aquaponics, and integrated livestock, once more on mineral soils. Taproot supplies a diverse set of CSA programmes, spring, summer, fruit and meat boxes, while their aquaponic system produces salad leaves in around 25 days, integrating nutrient flows from fish waste into plant production. What makes Taproot successful is its close integration with Noggins Corner Farm, Patricia's family business in the Annapolis Valley. The brand operates retail stores across Nova Scotia, providing Taproot with direct market access and consumer trust built over decades. By combining Josh's innovation in regenerative systems with Noggins' established brand and infrastructure, they demonstrate how horticulture can adapt to a life away from peatlands.

In Japan, as part of my Global Focus Programme (GFP), I visited Tatsuo Hisamatsu, who grows 70 different vegetable crops across six hectares, supplying 360 customers via vegetable boxes. Despite farming very sandy soils in a peri-urban environment, his system demonstrated how market size and consumer trust could support a viable business providing top quality ingredients, a non-negotiable aspect of Japanese cuisine, without reliance on peat soils.

Figure 10: Carrots and beans being grown by Tatsuo Hisamatsu on sand soils in Ibaraki Prefecture, outside Tokyo, Japan. Photo: author's own.

5.3.2 Indoor Systems

5.3.2.1 The Greenhouses of Southern Finland

The clearest break with reliance on peatlands came in Finland, where indoor horticulture is widely adapted to alternative substrates.

At Hortiherttua, Jani Lindman grows lettuce and herbs without the use of peat, growing hydroponically in gutters and rockwool blocks. Turning over nearly €3m annually, growing a product line including basil, dill, chives and lettuce cycled ever 5-6 weeks, margins are familiarly slim at 1–2%, echoing the pressures UK glasshouse growers face. Jani emphasised to me how energy efficiency was critical: air-source heat pumps and dehumidifiers converted 1 kW of electricity into 3.8 kW of heat to keep crops growing throughout the long Finnish winter, where both temperature and light are a limiting factor. For him, peat-free substrates and closed-loop fertigation systems were simply a necessity, showing how high-quality production can thrive entirely decoupled from peat.

Figure 11: Crisp-Ice Lettuce production at Lahtelan Puutarha Greenhouse, Finland. Photo: author's own.

Further north, at Lahtelan Puutarha, Juha Torkkel explained me how hydroponic lettuce can also be produced in rockwool slabs under highly automated fertigation and climate control. Completing cycles of in as little as 4.5 weeks in summer and delivering up to five harvests per line meant that Juha is able to produce 20x the yield, hectare for hectare, as a current peat cropping systems in the UK, without much of the associated carbon emissions. The additional benefit of producing salads in this system comes in the savings in labour, where 11 staff managed the entire greenhouse operation, planting, harvest and packing over 2.5 million heads of lettuce a year.

These are just two of more than 10 Finnish greenhouse enterprises I visited, all of which have adapted to local constraints to deliver highly productive horticulture while avoiding reliance on peat.

5.3.2.2 Other Global Indoor Systems

Beyond Finland, other indoor systems reinforced this message. In Malaysia, Serapi Farms are producing 2.4 million lettuce plants annually in greenhouses, the first of their kind in Sarawak, yielding profits of about £12,000 per month, while in Taiwan, YesHealth iFarm pioneered vertical farming with hydroponic towers and automated climate systems, producing high-quality salads for urban markets at profit margins near 50%.

5.3.3 Conclusions

These systems collectively challenged my preconceptions. From pixel cropping in the Netherlands to CSA-driven smallholdings in Canada and vertical farms in Taiwan, each offered proof that vegetables need not depend on drained peat. The Finnish examples were particularly powerful: Jarni and Juha each showed that high yields, stable supply, and commercial viability could be achieved using hydroponic solutions, while completely avoiding peat.

Taken together, these examples suggest that the UK's heavy reliance on peat for horticulture is not inevitable. By learning from systems elsewhere, we can begin to reimagine how fresh produce is supplied, reducing the burden on peatlands while still meeting the demands of food security and supermarket supply chains.

5.4 The Opportunity Costs Of These Systems

5.4.1 Inevitable Trade Offs

Shifting horticulture off peatlands of course isn't a zero-cost solution, there are real trade-offs to consider, not least the environmental emissions associated with synthetic nitrogen, the waste burden of rockwool substrates, and the carbon cost of further land clearance to accommodate our growing requirements. While protecting carbon stores, we must also understand the implications of relocating production to other land types and how supply chains will need to evolve.

The Fenland SOIL Opportunity Mapping project provides an early framework for this. Through collaboration with farmers, the project has mapped 37 different soil types across the Fens, including deep peat, degraded peat, and mineral soils, and identified field-scale zones suitable to continue high-value cropping, and the areas where other activities, including lower footprint regenerative agriculture, may take place.

International parallels also exist. At Delfland Farm in Saint-Jean-sur-Richelieu, Quebec, I spoke with grower Guillaume Cloutier, who explained to me how Canadian researchers are currently in the first phase of assessing greenhouse gases from agricultural peatlands, and what the next steps in the project might be to understand how relocating this industry might impact the 18T/HA CO_2e

average, assessing both environmental and productivity metrics (Strack et al 2024).

Yet transitioning vegetable supply off peat isn't just a technical exercise, it's also a cultural and market shift. Many of the UK's peatland-grown vegetables benefit from uniformity and aesthetic appeal, qualities prized by retailers and consumers. Decoupling supply from these expectations will require embracing greater crop diversity, imperfections and reconfiguring supply chains around variation, resilience, and environmental integrity.

If we want to protect peat soil and meet climate goals, we must be ready to redefine quality, embrace mosaic landscapes, and support farmers through transition, whether through mapping tools, finance partnerships, or new retail models that value sustainability over perfection.

5.5 More Than Just Wonky Veg

5.5.1 Alternative Supply Chains

If we are serious about reducing greenhouse gas emissions from horticulture, then part of the answer lies in how we purchase food. The supermarket model prizes uniformity, which is part of the reason why vegetables grown on peatland have dominated our markets. But if we want to reduce reliance on drained peatlands, we will need markets that can absorb greater variability, and where "imperfect" produce still has value.

Examples of this exist globally. At Lok Baitan floating market in South Kalimantan, Indonesia, farmers sell directly to wholesalers, retailers and consumers by boat. Imperfections are accepted as part of seasonal variability, with value tied more to freshness and farmer-consumer relationships than appearance.

In Nova Scotia, I met Justin Cantafio (Nuffield Scholar 2022), Executive Director of Farmers' Markets of Nova Scotia, representing 140 markets across a population of just one million, the highest per-capita concentration in Canada. Supported by a C$2.15m public procurement coupon programme, these markets inject resilience and affordability into local food systems, where crop aesthetics account for far less of the pulling power than freshness and community engagement. In Montreal, the Jean-Talon Market operates 364 days a year with hundreds of vendors selling directly to consumers, while in Toronto, the Leslieville Market has been running for 13 years, explicitly structured to maximise farmer revenue rather than consumer convenience, supporting hundreds of vendors and injecting millions into local food economies. These examples buck the myth that resilient market models only thrive in the developing world, they can flourish in highly developed economies too.

Figure 12: Lok Baitan Floating Market in Banjarmasin, South Kalimantan, Indonesia. The market still serves as a significant form of fresh produce trade between producers, wholesalers, retailers and customers. Photo: author's own.

Love him or loathe him, George Monbiot, arguing in his essay Contiguous Collapse, is right: resilience comes from having more nodes and links in our food system (Monbiot, 2022). We saw this ourselves during the COVID-19 pandemic, UK veg box sales increased 111% and, once safe to do so, socially-distanced farmers' markets surged, proving that decentralised systems can provide a genuine alternative to our aesthetically perfect supermarket food (Soil Association, 2020). By absorbing imperfection and shortening supply chains, these markets reduce waste, strengthen resilience, and offer a pathway to take pressure off drained peatlands.

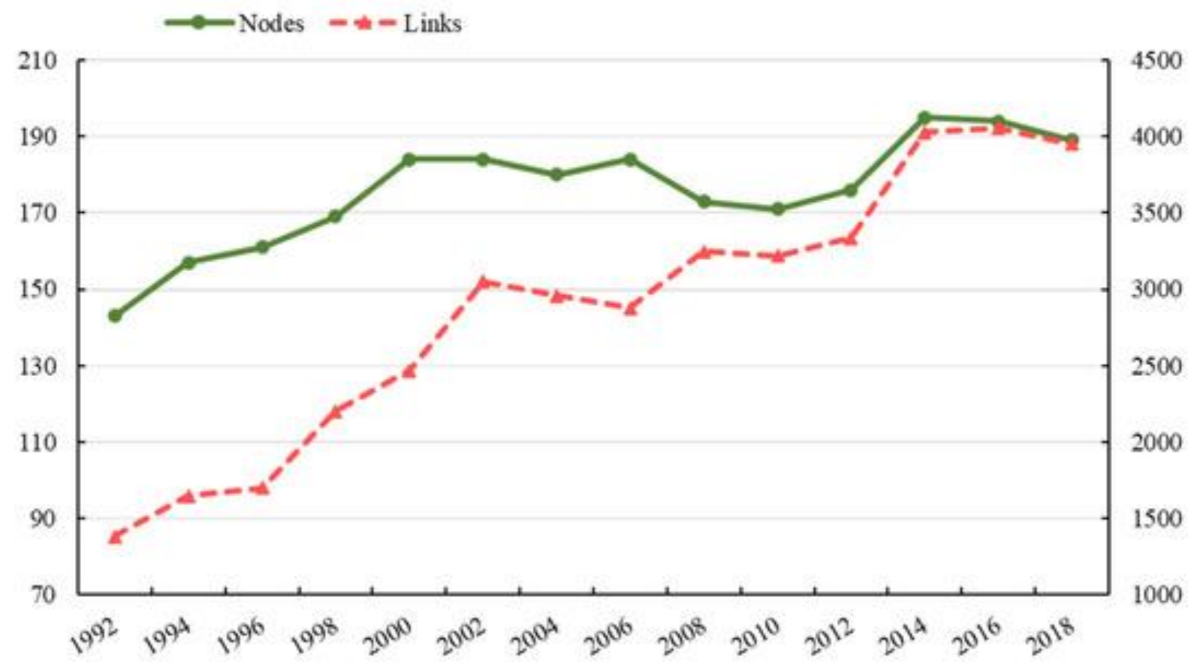


Figure 13: The Nodes & Links in our global food system 1992-2020. In this time, the number of nodes (producer countries and organisations) has stabilised, but the links between them have increased nearly three-fold. From Wang & Dai, 2021. Used under a UK Copyright Exception.

5.6 Other Activities Incompatible With Peatlands?

5.6.1 Enough Is Enough

If we are serious about reducing emissions from peatlands though, then certain agricultural activities must be seen as fundamentally incompatible with their long-term use. These are crops that could be grown elsewhere, or which impose disproportionate environmental costs when cultivated on drained organic soils.

One clear example is feed wheat. While cereals are vital, and the high nitrogen potential of drained peatlands may lend themselves to milling varieties with comparably low fertiliser inputs, feed wheats do not need the unique qualities of peatland soils to be productive. One potential exception to this which I saw was at Palmers in the Cambridgeshire Fens. In 2022, Luke's attempts to produce wheat in a "paludiculture" system, with an elevated water table aimed at avoiding the accelerated oxidation and subsidence that accompany drained peat systems, was only scuppered by a generationally dry summer and a revoked abstraction license. Conventionally speaking, however, I cannot reconcile benefiting from the unique fragility of peatlands for the production of low-grade commodity crops.

Maize, particularly for bioenergy, presents an even sharper issue. A study by UK Centre for Ecology & Hydrology (UKCEH) in *Nature Climate Change* shows that cultivating maize for biomethane on drained peat can emit up to three times more CO_2 than the natural gas it replaces (Evans et al., 2024). In Germany, my visit with Steffen During underscored this tension: maize for anaerobic digestion (AD) had been heavily subsidised since the 1980s, locking farmers into a cycle of production that eroded peat while delivering poor climate outcomes. With the loss of subsidies for maize-to-AD, some German farmers are now questioning its viability, yet the damage to peat soils remains visible.

If peatlands are to be preserved, we must recognise that using them for crops like wheat or maize, where viable production alternatives exist, entails unacceptable environmental trade-offs. These practices jeopardise both climate targets and the future of fragile peat soils.

Today peatlands are used for everything from uniform horticulture to grazing, forestry and even still unsuitable crops, but the pressing question is whether emerging trials, experimental practices and new management models can point towards a more sustainable path.

CHAPTER 6: ON FARM - THE FUTURE OF PEATLAND MANAGEMENT

The previous chapters have described how peatlands are currently used across the world and the scale of the problem we face. But the real focus of this report, and the question that matters most, is what can be done about it. If drained peatlands are to continue supporting food production without accelerating the climate crisis, we must trial new approaches, restore what can be saved, and test production systems that balance productivity with carbon emissions.

We must aim to identify where conventional production might continue, where alternative models such as paludiculture could be trialled, and where land can be conserved or restored to near-natural condition, recognising that peatland futures will not be uniform, but rather a mosaic of uses. What follows draws on my visits and observations across Europe, Asia, and North America to explore experimental and novel practices that point towards the future.

6.1 On Spared Peatlands

Some peatlands can and should be spared from intensive use. Conservation and restoration efforts are not a panacea, they often do not address food production or livelihoods, but they form an essential part of any long-term solution.

Figure 14: Kawasan Hutan Dengan Tujuan Khusus "Peat Care Village" in Tumbang Nusa, Central Kalimantan, Indonesia. The Peat Care Village serves as a demonstration site for forest restoration after peat fires that have decimated parts of Central Kalimantan after forest clearance. Photo: author's own.

In Estonia, the Hüpassaare õpperada allows visitors to experience an intact bog ecosystem without damage, reinforcing the cultural and ecological value of peatlands in their pristine state. Similarly, in the Netherlands, Nieuw Land National Park protects former extraction sites that have been re-wetted and turned into nature reserves, providing access and teaching the public about the value of these landscapes.

Where peat has already been dramatically degraded, restoration efforts are underway. Near Palangka Raya, Indonesia, I visited Tumbang Nusa's "Peat Care Village" with Prof. Adi Jaya. Following catastrophic fires, the community has sought to re-wet and reforest drained peatlands, combining traditional knowledge with NGO and government support.

In the UK, pilot projects such as the Winmarleigh Carbon Farm near Manchester, developed by the Lancashire Wildlife Trust under the Care-Peat programme, are re-establishing sphagnum moss and re-wetting degraded lowland agricultural peatlands, cutting greenhouse gas emissions by over 86% in their first year (Lancashire Wildlife Trust).

While in Finland, I saw the work of Snowchange Cooperative, led by Tero Mustonen, in restoring the 120-hectare Karvasuo peatland complex in Salo. Once heavily drained, Karvasuo is now being rewilded through community stewardship, with local people and municipalities working alongside Snowchange to block drains, raise water levels and allow natural vegetation to return, reconnecting degraded land with both biodiversity and cultural values.

These systems matter. They show that peatlands can be valued beyond agriculture, and that restoration is possible. But they also highlight limits: conservation does not feed people, and restored sites often sacrifice productive land that communities have relied on for generations. They form one part of the solution, not the whole.

6.2 Projects Compatible With Production

The more complex challenge is to find systems that allow peatlands to remain in productive use while slowing, or even reversing, carbon loss.

6.2.1 Wetter Farming Systems

The UK has begun to trial paludiculture, farming crops on wet or re-wetted peat. At G's Norfolk Farms, early experiments with Chinese leaf cabbage, celery and *Miscanthus sp.* are testing whether food and biomass crops could be viably produced in a system that dramatically reduces the peat's exposure to oxidation.

Figure 15: Paludiculture conditions at Neukalen Paludiculture Trial Site being run by Greifswald Mire Centre, Mecklenburg-Western Pomerania, Germany. Photo: author's own.

In the Netherlands, I visited farmers such as Joost van Schie, who is trialling seasonal water management on his grazing land by using surface-level pumps to bring river water back onto the polders. By raising the water table, he hopes to slow subsidence while continuing to produce milk. Across the border in Germany, at Neukalen, the Greifswald Mire Centre is leading trials of wet meadows and *Typha* (cattail) paludiculture, exploring their potential as raw materials for insulation and biofuels, and testing whether such crops can provide viable markets while keeping peat soils wetter.

6.2.2 Novel Amendments

Another approach is to amend peat soils with mineral materials to stabilise them. When organic peat binds to mineral particles it forms "hummus-mineral colloids", which are dramatically more stable and less prone to oxidation.

In the Netherlands, at KTC Zegveld, a peat research facility near Utrecht, I met Jeroen Pylman from the Louis Bolk Research Institute. Jeroen explained to me that as well as experimentally raising water tables to 20cm of the soil surface under grazing in an attempt to reduce the national emissions target by 1MT CO_2e, the University of Utrecht was also using the site to trial novel techniques of adding clay from ditch dredging back to peat, as well as inverting shallow peat layers in order to expose the sand underneath them.

In Quebec, Canada, I learned about the work of Prof. Jacynthe Dessureault-Rompré and her students at Laval University, who are running extensive trials on the use of soil amendments to slow peat decomposition. Their experiments focus on adding biochar produced from spruce, pine and maple, and calcium lignosulphonate, to assess their ability to stabilise organic matter and reduce greenhouse gas emissions. Weekly measurements of CO_2, CH_4 and N_2O fluxes are taken across soil columns and field plots, with results linked to soil type, management history and fertilisation. Early findings suggest that amendments can influence microbial activity and slow oxidation, and that nutrient indicators such as C:N ratios are reliable predictors of emission responses. Alongside these chemical treatments, biomass additions of miscanthus and willow are also being trialled as organic inputs to rebuild carbon stocks in already degraded soils. Together, these studies represent one of the most advanced amendment-based approaches in North America, aimed at re-carbonising cultivated peatlands while sustaining vegetable production.

6.2.3 Regenerative Agriculture

Maybe the greatest hope I took from my travels comes from where regenerative approaches can also help reduce the subsidence of peat. In Borneo's transmigration area, a farmer I visited, Bataman, has been trialling novel agroforestry techniques, combining tree crops such as Julutung and Agarwood with intercrops of tomatoes, chillies and local green-leaf vegetables called Kankung. By maintaining canopy cover and forgoing the requirement for cultivation, exposing a smaller proportion of the peat to oxidation, his small two hectare farm sits a metre proud of the remaining landscape, despite open ditch drainage and no control of water tables. Using root exposure to measure land subsidence, his soil surface has receded just 10cm over the previous 20 years.

Figure 16: Bataman's Regenerative Agroforestry Farm in Kampalalang, Central Kalimantan, Indonesia. Growing Julutng Latex, Agarwood for herbal medicine, and local fruit varieties with understories of vegetables and chillies. Photo: author's own.

Furthermore, his peatland farm is far more resilient than that of other local growers. He is able to produce crops far earlier in the dry season, and far later after the onset of seasonal rains, where he's able to recoup much more than his share in the marginal downturn in yield that his farm accepts.

In Estonia, Airi Külvet, Baltic Farmer Of The Year 2023, demonstrated the use of natively vegetated meadows, dismissed by many as unproductive, to graze her herd of wagyu cattle. At a land rent of only €5/ha from the state, and deemed worthless by many conventional grazers, the system, providing diverse "unimproved" forage produced high-value beef carcasses worth €12,000 each, showing how regenerative grazing techniques can turn low-input peat meadows into valuable production systems.

6.3 Other "Practices"

Not all novel practices are solutions. Some approaches amount to intensification or even abandonment of peat.

In Canada's Bradford Marsh, I observed so-called "sustainable intensification," where precision technology and intensive rotations are used to maximise peatland profitability. While certain growers, including Kyle Horlings, are experimentally removing land from production in an attempt to rest the land and stave off diseases, much of the area's horticultural production has gone the other way, maximising horticultural production with year-on-year rotations of higher value vegetable cropping. While impressive, the system still relies on drained peat and does not fundamentally alter the trajectory of soil loss.

Elsewhere, certain growers' approach would favour to simply "get rid of the peat." In Malaysia, the Carus Group are converting peat plantations into coconut systems. An anchor company, working with local communities to bring economic opportunity to rural areas of Sarawak, the production of crop, which is heavily compromised both in terms of yield and quality on peatlands, has led to yearly deepening of drainage channels and the inevitable acceptance of the peat's long-term degradation.

6.4 Chapter Conclusions

None of these practices offer a silver bullet. Conservation and restoration are vital, but they forgo productive capacity. Paludiculture and wetter farming systems offer promise, but yields remain uncertain and markets for novel products are underdeveloped. Amendments may stabilise soils, but costs and logistics are significant. Regenerative models can deliver premium products, but more research is required into their effects on reducing carbon emissions. Intensification maximises productivity but does nothing to delay decline, while "removing the peat" is little more than resignation.

The common thread is that all these practices involve trade-offs:

- Land is already too degraded to restore.

- Productive land is foregone for conservation.
- Yields are potentially reduced compared to exploitative systems.
- Water resources are insufficient for re-wetting.
- Uncertainty exists over long-term markets.

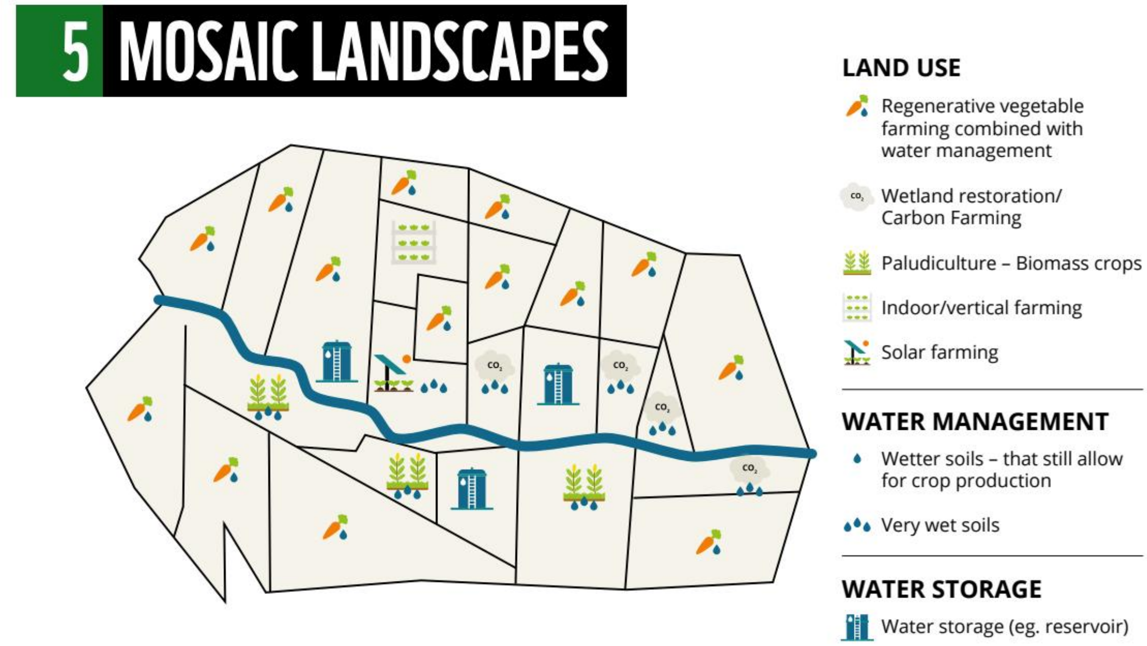


Figure 17: A mosaic landscape approach to the future of food production on lowland peats. Credit: WWF. Used under a UK Copyright Exception

What we need, therefore, is not one solution, but a system that allows multiple approaches to be tested and supported. Financial mechanisms, supply-chain adaptation, and clear policy frameworks must underpin these efforts. Only then will conservation, wetter farming methods, novel amendments, regenerative agriculture and even cautious intensification become viable, scalable parts of a wider transition.

CHAPTER 7: SUPPORTIVE POLICY & FINANCE

7.1 UK Perspective

In the UK, peatland policy and finance currently places more emphasis on restoration than on sustainable management of farmed peat. Public funding is channelled through schemes such as the Nature for Climate Peatland Grant Scheme (NCPGS) and the Lowland Agricultural Peat Water Discovery Pilot (LAPWDP) but these largely address conservation and re-wetting of peat back to near-natural sites.

Private finance has developed via the Peatland Code, modelled on the Woodland Carbon Code. Like the woodland scheme, it enables landowners to generate verified carbon credits for sale to voluntary markets. However, eligibility is restricted to full restoration projects on near-natural peat. As a result, productive agricultural peatlands, where emissions are greatest, are excluded. The Code specifies that "eligible projects must be re-wetted to the point where carbon emissions are halted and ecological succession to wetland vegetation is assured." For farmers, this leaves a funding void: the most degraded, high-emission soils are left without viable pathways to support experimentation or transition. Farmers producing vegetables on drained peat soils, therefore, have struggled to access meaningful support.

The Environmental Land Management Schemes' (ELMS) Sustainable Farming Incentive (SFI) component was designed to reward environmental outcomes, yet their structure is ill-suited to the realities of peatland agriculture. Currently offerings specifically for peatland management are limited to where water levels are raised within a narrow band, often incompatible with the production of horticultural crops, and make no concession for the issues around water availability and storage. Farmers trialling novel techniques, such as partial re-wetting, novel amendments or regenerative agriculture, have no mechanism specific to claim support, even though these practices may reduce emissions in ways more compatible with production.

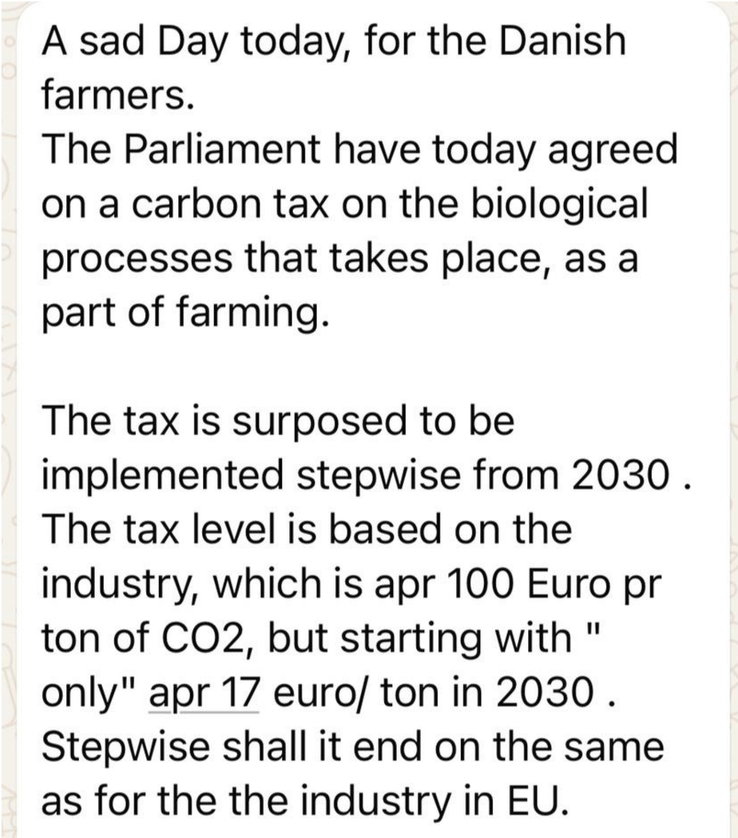
In short, the UK has a partial toolkit. Restoration is incentivised; novel, production-compatible measures so far are not.

7.2 International Perspective

Globally, policy approaches to peatland management fall broadly into the category of "carrots" and "sticks".

7.2.1 Sticks

Historically, the most extreme "stick" was Soviet-style centralised food production. Under Kolkhoz, vast areas of land were drained and farmed under state control, creating a legacy of degradation and low farmer trust. This centralised approach is often remembered through a negative lens. The day after leaving Denmark to return to the UK, I received a text from a farmer I had visited in Randers, Knud Bay Smith.


A sad Day today, for the Danish farmers.
The Parliament have today agreed on a carbon tax on the biological processes that takes place, as a part of farming.

The tax is surposed to be implemented stepwise from 2030 . The tax level is based on the industry, which is apr 100 Euro pr ton of CO2, but starting with " only" apr 17 euro/ ton in 2030 . Stepwise shall it end on the same as for the the industry in EU.

Figure 18: A Whatsapp message from Knud Smith Bay in July 2024. Photo: author's own.

In Denmark, a €100 per tonne CO_2 tax has been historically levied on industrial emissions. As of 2024, the plan is for that tax to also cover agriculture, including emissions from peatlands. This reflects the polluter-pays principle, though it risks alienating farmers if not matched by support. The fear for farmers, growers and supply chains is that this leaves the country's agricultural system dramatically disadvantaged versus its EU trade partners, and threatens to enormously damage the sector as a whole. The alternative, what appears from the outside as a "get out while you can offering", is a carrot still being dangled by the Danish government.

In Estonia, policies have been more aspirational than practical: the government has mandated a target of 1,000 hectares of paludiculture annually, but as of now, no pilot sites exist, and implementation is effectively stalled. Independent researcher Anna-Helena Purre highlighted how most political attention is still focused on peat extraction rather than agricultural peatlands, both of which contribute an equal share of the countries 20% of greenhouse gas emission, creating what appears to be a misalignment of priorities.

In the Netherlands, the "stick" has been applied via farm closures linked to nitrogen losses. Aad Straathof, farmer, local politician and democratically elected member of the municipal water board representing Boerenpartij (Farmers Party) described some farmers have been forced to cease production altogether under nitrogen reduction laws. While effective at reducing emissions, such measures often create a major social and political backlash.

7.2.2 Carrots

By contrast, where governments have offered meaningful support, farmers have responded positively in almost every context that I've visited. In the Netherlands, up to 95% of infrastructure costs for water management to keep peat soils wetter can be covered by government support. While at the whim and mercy of modern European politics these grants are not universally backed, where they have been offered to farmers, the response appears generally to have resulted in widespread uptake and positive sentiment.

In Denmark, where one-off government payments of 85,000 DKK (€11,250) per hectare is offered for forgoing production on peat soils, and allowing them to naturally re-wet by removing draining, policies have encouraged land swaps between farmers, enabling some farmers to move towards more productive mineral soils.

Patterns also follow GDP. In Finland, farmers are still paid subsidies for land drainage, regardless of soil type, a reflection of the historic drive for agricultural self-sufficiency. In Indonesia, government payments and finance are directed towards food security crops such as rice, even on fragile peat soils. During my visit to Banjarbaru, one farmer confirmed that subsidies and fertiliser support remain tilted towards maximising production, to raise farmers out of local poverty, even at the expense of long-term sustainability.

The contrast is clear. Where "sticks" dominate, farmers resist; where "carrots" are meaningful, they adapt.

7.3 Policy & Finance Requirements

Across all the countries I visited, one lesson stands out: farmers are not resistant to change, but they need alternatives that are viable, financed, and supported by policy. Novel practices including paludiculture, amendments and regenerative agriculture, cannot succeed without mechanisms to de-risk them.

The current gap is between restoration finance (which is well supported) and production-compatible trials (which are not). The UK, like many other nations, requires a new suite of policies that bridge this divide:

- Support for partial re-wetting, where appropriate, and regenerative systems, not just full restoration.
- Long-term funding certainty, not small, competitive pots.
- Integration of carbon codes for farmed peatlands, recognising emission reductions as well as removals.
- Financial "carrots" that match the scale of infrastructure change required.

Above all, we need joined-up thinking between agriculture, climate, water, and finance. Without it, farmers will remain locked into systems that damage peat because there is no other option. With it, they could become stewards of a new model of peatland agriculture.

CHAPTER 8: CONCLUSIONS

- The narrative around peatlands must change. For too long they have been seen as marginal, hostile or expendable landscapes. Reframing peatlands as vital carbon stores, biodiversity refuges and productive systems underpins both public support and policy action.

- Drained peatlands make an unacceptably large contribution to climate change. The anthropogenic role of peatlands within the climate crisis is undeniable, and we cannot continue to bury our heads in the sand hoping this issue will go away.

- The UK's reliance on peat for horticulture is exceptional and unsustainable. Around 40% of field vegetables are grown on lowland peat in the UK, driving high emissions and soil loss. Other production systems are both possible and vital if we are to reduce this dependence.

- There is no single solution to how to manage our drained peatlands. Conservation, restoration, wetter farming systems, amendments, regenerative agriculture and even "sustainable intensification" all bring trade-offs in terms of yield, cost, water and viability. What is clear is that alternatives to full restoration exist that can reduce emissions while maintaining productivity.

- Markets and supply chains must evolve. The supermarket model's demand for uniformity drives peat use. More resilient systems such as CSAs, farmers' markets and direct sales create space for imperfection and reduce pressure on peatlands. Procurement must shift to value nutrition and sustainability over cosmetic appearance.

- Policy and finance are decisive. Farmers adopt change when risks are shared. Current UK schemes focus narrowly on full restoration, leaving productive peatlands unsupported. Internationally, "carrots" such as Dutch infrastructure grants or Danish land-swap payments have proved far more effective than "sticks" alone.

CHAPTER 9: RECOMMENDATIONS

- Only 41% of UK peatlands fall in protected areas (Austin et al., 2025). We must prohibit any further exploitation of intact UK peatlands. No new drainage or conversion of undisturbed peat should be permitted, ensuring the protection of our few remaining carbon stores.

- Invest nationally in water infrastructure. Large-scale public investment is needed to create and manage water storage that allows farmed peatlands to be kept partially wetter, reducing emissions while sustaining productivity.

- Replicate collaborative models across all peat landscapes. The Fenland SOIL initiative has shown the value of convening diverse stakeholders. Similar mechanisms should be established across all UK peat regions, supported by a central coordinating body.

- Expand opportunity mapping. Mapping of soil, hydrology and land use in the Fens should be extended across the UK's peatlands to identify where productive farming, restoration, and alternative systems can best be located.

- Fund long-term applied research. Public funding should significantly expand trials into novel soil amendments and regenerative practices on peatlands, with a focus on options that can reduce emissions while allowing continued food production on top of existing restoration funds.

- Align supermarket procurement with sustainability. Early steps by UK retailers to consider peat in their sourcing strategies should be expanded, with stronger commitments to support producers who are trialling or implementing lower-emission practices.

CHAPTER 10: AFTER MY STUDY TOUR

It is almost impossible to summarise the last two years.

So far in my career, G's is all I have ever known. I left university, stepped into a new industry, a new home and a new way of life, and after seven years I had built both a career and a comfort zone. But with that comfort zone came something else, a dwindling appetite to step outside it.

My Nuffield Scholarship reminded me that a comfort zone can be as much a hindrance as a blessing. The most rewarding things often come from making the most difficult choices. For me, that now means stepping away from farming, at least for a while.

Through the GFP I was privileged to walk the corridors of power at the UN's Food and Agriculture Organisation (FAO) in Rome. Seven weeks of asking strangers about their farms and families, and of leaning on their kindness, gave me the confidence to stop ambassadors, diplomats and officials in their tracks. Time and again I was told: *"We don't normally see farmers here."* I have decided to try and change that.

In two weeks' time, I begin a law degree. The boots will go away, the smart shoes will be dusted off, and I will once again embrace being a student. I hope that education, combined with the perspective of seven years in farming and this extraordinary scholarship, might one day allow me to return to Rome, not as a visitor this time, but as a representative, standing on the shoulders of the 247 farmers, researchers and families I have met along the way, and fighting for a fairer, more sustainable food system.

In the meantime, I have also started a new business with four Estonian farmers, born, as is often the Nuffield way, from a farm visit that turned into an evening drinking over-strength German beer. Together we are exploring how to use our collective experience to improve the sustainability of cereal farming. The platform is in its early stages, but my hope is that one day future Nuffield Scholars might visit me and discuss how it has helped change our industry for the better.

CHAPTER 11: ACKNOWLEDGEMENT & THANKS

First and foremost, my thanks go to the Nuffield Farming Scholarship Trust for seeing the potential in me and giving me this opportunity. Many Nuffield Scholars will say this is a lifechanging trip, and until you've done it, you can't begin to imagine what that means. Now, coming out the other side I can say with all my grace that this has been the journey of my life so far. Thank you for believing in me.

Thank you to my sponsors, the Royal Norfolk Agricultural Association and in particular CEO Mark Nicholas MBE. This report, and my continued involvement in the future of our lowlands will never match the kindness you have given me in allowing me to take this journey, and I will be forever grateful.

To G's, and all my former managers, colleagues and friends, and in particular John, Charles, Julius and Rob. Thank you for taking me under your guidance, introducing me to this wonderful industry and being patient with me as I learned the ropes, both of farming and of adulthood. Thank you also for your continued support throughout my Nuffield Scholarship journey. None of this would have been possible without the freedom to leave at the drop of a hat.

To each and every farmer, research institute, policy advisor, land custodian and member of the public who threw open your doors to talk to me, teach me, show me your farms and your life's work, thank you. None of this would be possible without your kindness and I hope this goes some way to reflecting how grateful I am.

To the UK Nuffield Scholars of 2024. For your continued support, endlessly entertaining group-chat and inspiration throughout this all. I hope we remain friends for life, and I'm so looking forward to how this experience propels you all to great things.

To the International 2024 Nuffield Scholars Group. Since our Contemporary Scholars Conference (CSC) in Brazil I have been repeatedly inspired by the trips I've seen you take, and it has given me the courage to take the road less travelled. I feel confident that our industry is in safe hands.

To Mum, for sitting through endless PowerPoint presentations, housing me between my trips at short notice and for the most uncanny ability to get peat stains out of white T-shirts.

To Bramley, the puppy, for sitting on my feet while I planned these trips.

And finally, to Dad, whose final words to me were to go out and take this opportunity. God Bless.

"Ships are safe in harbour, but that's not what ships are for." – John A. Shedd.

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