

## Written evidence submitted by the Nature Friendly Farming Network (NFFN)(SH0030)

**How can the Government measure progress towards its goal of making all soils sustainably managed by 2030? What are the challenges in gathering data to measure soil health and how can these barriers be overcome?**

1. Improving soil health has a vital role to play in meeting several of the UK Government's legal commitments, including meeting net zero by 2050, alongside several targets within the Environment Act. However, current approaches to soil management are compromising our ability to meet these targets, resulting in significant costs to farm businesses and wider society. For example, greenhouse gas emissions from soils represent 21% of the UK's agricultural emissions<sup>1</sup>, while the costs of soil degradation in England and Wales are estimated at up to £1.2 billion annually as a result of productivity losses, impacts to water quality and climate change<sup>2</sup>. At the farm level declining soil health manifests itself in increased input costs, increased vulnerability to climate change and lower yields and productivity, all of which undermine business resilience and profitability.
2. Supporting sustainable soil management through appropriate regulation, incentives, advice and knowledge exchange is therefore crucial in meeting the Government's ambition to ensure that all soils are sustainably managed by 2030 and in supporting a more resilient, profitable agriculture sector. Critical to meeting this target will be the development of an agreed definition of 'sustainably managed' in the context of soils, as there are many different and sometimes competing interests of what this means in practice. Of equal importance is the development of a standardised system of soil monitoring to provide a robust soil health baseline and to evaluate progress.
3. At a farm and national scale, consistent soil testing and monitoring is key. At the farm scale it is crucial in understanding what functions their soil is capable of delivering, whether their soils are improving or degrading the impact that land management practices are having. At a national level it is important to understand the overall health of a country's soils, the impact of policies over time, and to measure progress against national and international targets.
4. However, soil testing and monitoring is far from sufficient at either scale. For example, a Freedom of Information request in 2020 has highlighted that only 0.41% of England's environmental monitoring budget is dedicated towards soil monitoring, despite the Government's recognition of the importance of soils in sustaining life and meeting a range of environmental goals. In total, £283,780 were spent on soil monitoring, compared to £60.5 million on water quality and £7.65 on air<sup>3</sup>.

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<sup>1</sup> [Sector-summary-Agriculture-land-use-land-use-change-forestry.pdf \(theccc.org.uk\)](#)

<sup>2</sup> [The total costs of soil degradation in England and Wales - ScienceDirect](#)

5. A recent survey with farmers highlighted that although around half of farmers undertake routine chemical soil analysis, less than 20% undertake monitoring of important soil health indicators such as Soil Organic Matter<sup>4</sup>. Both figures above highlight the need for increased investment in soil monitoring in order to effectively inform management and evaluate progress from the farm level to the national scale. Key to this will be the development of agreed guidance about critical indicators of soil health, specific thresholds for different soil types and the methods land managers should be using to measure them. Similarly, this will require the development of clear indicators and metrics that underpin the Government's own soil target.
6. Government must therefore provide clear direction regarding the critical soil health indicators to measure on farm soil health. These indicators must also be embedded in future guidance, farm support and regulations, alongside a range of tools and advice that farmers can avail of. This should be complemented by increased investment in nationwide soil monitoring to provide a comprehensive and accurate evidence base.
7. The development and implementation of the Environmental Land Management Schemes and legally binding targets within the UK Environment act demonstrate that there is growing momentum for the establishment of formal indicators for soil health at a farm and national scale. It is critical that each of these are aligned so that data collected at the farm scale can inform the picture nationwide.
8. However, Defra risks missing a key opportunity to build a comprehensive baseline of England's agricultural soils through the Sustainable Farming Incentive (SFI). Currently there are two SFI standards with a focus on soils in arable/horticulture systems and on grasslands. As part of these standards farmers will be required to undertake a soil assessment and create a soil management plan. However, the data will not be collected centrally and farmers will not be expected to conduct a specific standardised methodology for these assessments.

**Do current regulations ensure that all landowners/land managers maintain and/or improve soil health? If not, how should they be improved?**

9. Effective regulation and enforcement has an important role to play in ensuring that soils are adequately protected. As the importance of soil health is increasingly recognised, regulation could play an important role in driving higher standards of management on agricultural soils and to take account of new areas of environmental importance where regulation is lacking e.g. soils in relation to climate change.
10. Despite regulations' role in supporting improved soil health, there is no overarching regulatory framework specifically focused on soils. Soil management has instead been governed by a variety of separate legislative instruments that have a direct or indirect impact on soils. These have been developed in a piecemeal fashion and have not been

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<sup>3</sup> [Our Work | Projects | Sustainable Soils Alliance](#)

<sup>4</sup> <https://www.sheffield.ac.uk/sustainable-food/research/translational-transformative/achieving-sustainable-soil-management-uk#Research%20findings>

developed with a specific focus on soils and are therefore insufficient in addressing the range of threats they face.

11. Currently, the two areas of regulation with greatest influence on the management of agricultural soils are the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 (Farming Rules for Water or FRfW) and cross compliance.

### **Farming Rules for Water**

12. Although the Farming Rules for Water (FRfW) were designed to achieve national compliance with the Water Framework Directive, there are several rules which have an influence on the management of soils, through the lens of soil management and its role in avoiding diffuse water pollution. However, it is difficult to assess the effectiveness of the FRfW in relation to soil health for a number of reasons.
13. For one, it appears that awareness of the rules among farmers and land managers is low, while their inspection and enforcement has been insufficient. A recent Freedom of Information Request highlighted that the EA's regulatory officers made fewer than one farm inspection per day from April 2018-March 2020 across England. Of the 308 inspections in 2019/20 aspects of the FRfW were inspected at 129 farms, of which 66 were non-compliant with at least one rule<sup>5</sup>. Although this data suggests that non-compliance is widespread, enforcement remains light touch in the form of warning, and advice and guidance letters. Taken together these have hampered the ability of the FRfW to play its full part in providing robust protection for soils across England.

### **Cross compliance**

14. Under the Common Agricultural Policy farmers in receipt of Basic Payments are required to abide by a basic set of environmental regulations, many of which are related to soils and their protection including the provision of minimum soil cover, limiting erosion and maintaining the level of soil organic matter in soil. In principle, these should serve as a deterrent to poor practice with the threat of reductions in payments depending on the severity of the breach.
15. While there have been several issues associated with cross compliance, in principle the link between regulatory compliance and payments provides an important enforcement mechanism. However, as outlined in the agriculture transition plan, cross compliance will cease to apply to all farmers and land managers in England as a result of the process of delinking. While this represents an important step in the agriculture transition and the move away from area-based payments there are environmental risks, particularly in the sphere of soil protection. While many GAEC standards are underpinned by domestic regulation, there are several related to soil management which do not. In particular, GAEC 6, focused on providing minimum soil cover and GAEC 5 on limiting soil erosion. Unless such protections are adequately incorporated into domestic regulation and

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<sup>5</sup> <https://committees.parliament.uk/writtenevidence/41562/pdf/>

guidance there is a risk that agricultural soils could be afforded less protection than prior to the agriculture transition.

Cross Compliance GAEC Standard	Regulatory gap following delinking	Proposed solution
GAEC 4 - minimum soil cover	The majority of the rules around providing minimum soil cover, particularly green cover. - The new Farming Rules for Water do include the use of stubbles as one possible solution to preventing soil erosion (Rule 6) but not any other forms of soil cover.	Add to new Farming Rules for Water under Rule 6 for soil management
GAEC 5 - limiting erosion	Rules 6 and 7 of the new Farming Rules for Water require farmers to 'take all reasonable precautions to prevent soil erosion' which cover most of the causes of soil erosion mentioned under GAEC 5, with the exception of protecting bare soil from wind blow	Add to new Farming Rules for Water under Rule 6 for soil management

### An improved baseline with increased action on soils

16. Without giving explicit recognition of soil in overarching legislative frameworks, it has not been given the policy focus it needs, resulting in regulation which is incapable of protecting all of its services and functions. For example in the case of the FRfW whilst it touches on some elements of soil protection it does not offer protection to soils from factors such as wind erosion, or take into account other environmental impacts that can be caused by poor soil management e.g. soil carbon and biodiversity loss.
17. Therefore there is a need to build a more holistic regulatory framework in relation to agricultural soils. To do this, the Government could incorporate soil explicitly within the current FRfW, which could be rebranded as a set of harmonised baseline standards for water, soil and air. This would help address the gaps arising as a result of de-linking mentioned above, while adding other elements of soil protection which have yet to be regulated for e.g. protection of carbon rich soils, accounting for Soil Organic Matter in mandatory soil testing etc. Another option would be to put forward a soil-specific statutory instrument with the aim of providing a holistic set of protections for soils, including those related to carbon storage and sequestration, water storage, biodiversity and soil fertility. Ultimately, this should catalyse a new approach to soils, moving away from an approach which focuses on minimising degradation to one which provides the foundations for a transition to truly regenerative, nature-friendly soil management.
18. Given Defra's target to achieve at least 70% uptake of ELMs by 2028<sup>6</sup> there is a need for a more effective approach to regulation and enforcement than has been the past. This

is essential in ensuring a level playing field for farmers and to ensure value for money for public investment. Defra should articulate what role regulation will play by the end of the agricultural transition alongside a fair approach to inspection and enforcement. This should outline how gaps in existing regulation will be filled and how a more proactive approach to soil protection will be implemented. Alongside this there should be a rapid upscaling of advice and enforcement to drive up compliance with a new and improved baseline.

**Will the standards under Environmental Land Management schemes (ELMs) have sufficient ambition and flexibility to restore soils across different types of agricultural land? What are the threats and opportunities for soil health as ELMs are introduced?**

**Existing SFI soil standards**

19. The interventions outlined within the SFI soil standards represent a solid platform to build from, but they alone will not be capable of improving soil health at the scale required. In many cases, they represent a minimum standard of good practice in relation to soil management which should be improved upon, through the release of additional high ambition standards and the incorporation of existing lower ambition options into a new and improved regulatory baseline.
20. For some elements of the introductory standard, particularly in relation to providing winter cover it is questionable whether some elements of the standards add additionality over current regulation and best practice. For example, the introductory standard requires that 70% of the land area entered into the standard has green cover over the winter months. In delivering this, farmers are able to choose from a range of covers to meet this requirement including autumn sown crops, which for many does not result in a meaningful change in existing practice<sup>7</sup>. Similarly, the improved grassland standard aims to minimise bare ground over the winter, which could be a direct read across of existing GAEC standards aimed at providing minimum green cover and minimising erosion.
21. Key to measuring the scheme's success will be evaluating its contribution to meeting Government commitments, including the ambition to ensure that all soils are sustainably managed by 2030 and in meeting net zero. At present the scheme is putting an emphasis on outputs e.g. level of green cover rather than the delivery of outcomes e.g. improved soil health. This is not inherently problematic if there is a clear link between the actions and outcomes being delivered. However, so far this is not clear. Although Defra previously estimated that SFI standards could save up to 60,000 tonnes of Co<sub>2</sub> annually between 2023 to 2027 increasing to 800,000 annually by 2037<sup>8</sup> it is not

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<sup>6</sup> [Environmental Land Management \(ELM\) update: how government will pay for land-based environment and climate goods and services - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/environmental-land-management-elms-update-how-government-will-pay-for-land-based-environment-and-climate-goods-and-services)

<sup>7</sup> Recent data suggests that UK soils are cropped over the winter months, with 3% in cover crops, 13% in plant residues and 1% in multi-annual plants - only 7% of soils are left bare, with 30% unrecorded

<sup>8</sup> [Agricultural Transition Plan 2021 to 2024 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/agricultural-transition-plan-2021-to-2024)

clear how this figure has been reached, what actions will deliver it and how it will be assessed over time.

22. The requirement to produce a soil assessment and produce a soil management plan is a positive step which can help inform tailored management practices aimed at improving soil health. This is a useful starting point which could help contribute to the development of a robust baseline of England's agricultural soils (as mentioned above). However, it must soon be accompanied by a wider range of incentives aimed at taking action for soil health than what is currently provided under the SFI soil standards for arable/horticulture and improved grasslands.

### **Improving soil health through a whole farm approach**

23. There are many activities that are proven to improve soil health over and above those presented within the SFI standards currently on offer. Efforts to improve soil health are often highly contextualised based on farming system, location and soil type. However, there are a range of principles that can be applied to every farm, which could be adopted within ELMs.
24. Delivering a whole-farm approach is key to increasing soil health as it explicitly recognises that there are many interrelated factors which have an influence on soil health and other environmental and business outcomes. In general, a holistic whole farm approach can be achieved by implementing the following seven key measures developed by the Soil Association.
  - a) Monitoring soil health
  - b) Increasing organic matter that goes into soils (based on soil type)
  - c) Reducing tillage and chemical use
  - d) Covering soils year round
  - e) Implementing agroecology
  - f) Reducing compaction from machinery and livestock
  - g) Well-designed crop rotations

25. Defra recently published further SFI standards on nutrient management, integrated pest management, hedgerows, improved grassland and low/no input-grasslands. If undertaken in concert and at a sufficient scale, these actions would help make a valuable contribution to improving soil health nationally. However, whilst there are many positive individual actions there is currently no guarantee they will be implemented as part of a whole farm approach. For example, the IPM standard includes positive actions including the adoption of insecticide free areas, beneficial pollinator habitat and more diverse rotations, however these do not have to be completed in conjunction with each other, or with other standards e.g., the SFI arable/horticulture standard. Similarly, there is no minimum threshold for the area of land required under an agreement, meaning that small parcels of land could be entered into standards which would have relatively small impacts on soil health overall.

26. In the short term, Defra can address this by emphasising the benefits of whole farm management and how options can be combined to deliver benefits for farm businesses and the

environment. For example, highlighting the relationship between nutrient management, improved soil health, and reduced disease and pest burden could encourage uptake of multiple actions simultaneously. Defra could also use the proposed SFI management payment to incentivise additional options or increase delivery of existing options each year. This would help ensure that farms are increasing the ambition of environmental management each year, instead of being paid an additional fee for repeating the same actions.

27. The development of a clear strategy is still needed from Defra which outlines how the scheme will grow in ambition over the remaining transition period, including clarity on how higher ambition options will be built into the SFI over time and how individual actions can be stacked together as a part of a cohesive whole-farm approach.

28. For many farmers, entering the SFI will be their first experience in engaging with payment schemes focused on the delivery of environmental land management. For many, this may result in challenges in delivering the objectives of the scheme and targeting the right options for their soils and soil type. At present there is no advice or knowledge exchange within the SFI which could reduce the effectiveness of the scheme. Defra should invest in more farmer to farmer peer learning, so new participants to the scheme can benefit from those who have been delivering environmental land management objectives for years.

### **What does the UK Government need to do to tackle other stressors on soil health, such as soil contamination?**

29. The Government must recognise the impact of pesticide use on soil health<sup>9</sup> and implement steps to reduce reliance on their use. The IPM SFI standard provides a useful mechanism for delivering this aim if higher ambition options are delivered at a wide scale. Defra should emphasise the importance of the scheme in helping farmers reduce their reliance on costly inputs such as chemical pesticides, while also providing up to date and easily accessible information and advice and farmer to farmer peer learning. Defra should also publish the National Action Plan for the Sustainable Use of Pesticides as soon as possible, which should include specific time-bound reduction targets, while increasing research and development in this key area.

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<sup>9</sup> [Frontiers | Pesticides and Soil Invertebrates: A Hazard Assessment \(frontiersin.org\)](#)

<sup>10</sup> [The Problem with Pesticides | Soil Association](#)