Safeguarding the UK's Soils

A policy briefing from the Soil Association

October 2017

Summary

1. Fertile, healthy soils are vital for the nation's food security, but this overlooked natural resource provides much more - from carbon sequestration to flood protection. The UK's commitment to the '4 per 1000' initiative to increase soil carbon stocks by 0.4% year-on-year is welcome, but Government policies remain piecemeal and inadequate.

2. We already know the practices that damage soils and those that can restore and protect them. What we need are policies to support and encourage farmers to do more of the right thing. Soil health should be at the heart of the 25 Year Environment Plan and the forthcoming Agriculture Bill. Our proposals include:

   i. A new farm support scheme with specific prescriptions for soil protection and/or a system of soil stewardship payments.

   ii. Stronger support for organic conversion and maintenance – recognising that organic farming methods significantly improve levels of soil organic matter and soil carbon.

   iii. Regular soil testing by farmers, alongside Government investment in soil health research, data collection and monitoring across the UK.

   iv. Measures to address barriers to soil stewardship linked to short term farm tenancies - for example by making soil protection and monitoring a requirement of short term tenancies, and incentivising longer term tenancies.

   v. A bolder approach to reducing the use of synthetic nitrogen fertiliser, for example by exploring nitrogen budgets and/or fiscal interventions.

   vi. Restoration and protection of lowland peat soils - including by setting up a special climate and soil protection area covering the 20,000 hectares of remaining deep peat in the Fens.

Introduction

3. After decades of neglect and mismanagement, the UK's soils are in crisis. The Committee on Climate Change warned in 2015 that some of the country's most productive farmland risks becoming unprofitable in a generation due to erosion and loss of organic carbon.[1] Fertile, healthy soils are vital for the nation's food security, but this overlooked natural resource provides us with more than food.

4. Britain's soils store an estimated 9.8 billion tonnes of carbon,[2] making them an essential resource to reduce greenhouse gas emissions and tackle climate change. However, when badly managed, soils can turn from a store to a source of emissions. Nowhere is this more acutely illustrated than in the carbon-rich, deep peat soils of the East Anglian Fens, which store an estimated 57% of England's soil carbon.[3] Just 16% of

the peat stocks recorded in the Fens in 1850 currently remains, and these soils are eroding by 1 – 3 centimetres each year.[4]

5. Soils perform a vital function in the prevention of floods and droughts. Healthy soils, rich in organic matter, can store excess water – providing resilience against water stress in periods of drought, and protecting against flooding. In contrast, eroded and compacted soils lose the ability to absorb and filter water, damaging water supplies and increasing flood risk.

6. We already know the practices that damage soils and the practices that can help to restore and protect them. What are urgently needed are policies to support and encourage farmers to do more of the right thing, in order to save the UK's soils for present and future generations.

7. Current Government policies on soil protection are piecemeal and inadequate. Whilst the UK's commitment to the '4 per 1000' initiative to increase soil carbon stocks by 0.4% year-on-year is welcome, action is now needed to turn that ambition into reality. The Government's 25 Year Environment Plan and forthcoming Agriculture Bill must address multiple challenges to soil health through a comprehensive, joined-up Soil Strategy, bringing together a range of specific, time-limited actions. The following six recommendations set out key elements any such strategy should contain.

Recommendation 1: Reward practices that improve soil organic matter

8. The Soil Association has long called for concerted efforts to improve soil organic matter content in UK soils. The same practices that increase organic matter also increase soil carbon – helping the UK deliver its commitments to the '4 per 1000' soil carbon initiative and other climate goals. 'Seven Ways to Save Our Soils'[5] sets out the practical and policy measures required to achieve the necessary increases in soil organic matter and soil carbon across the country:
    a) Increase the amount of plant and animal matter going back onto fields
    b) Improve soil health monitoring across the UK
    c) Encourage soil organisms – both those that build up soil and those that release nutrients
    d) Cover up bare soil with continuous plant cover
    e) Bring more trees onto farmland (agroforestry)
    f) Reduce soil compaction from machinery and livestock
    g) Design crop rotations to improve soil health.

9. These practices should be rewarded under a new farming support framework. For example, a farm policy which rewards farmers based on environmental outcomes

must include prescriptions for soil protection and/or a system of soil stewardship payments. Baseline actions (such as cover cropping and maintaining existing grassland without using manufactured nitrogen fertiliser) should receive support, and there should be higher payments awarded for more complex or long-term practices such as agroforestry.

Recommendation 2: Increase support for organic farming

10. It is widely accepted and understood that the methods employed by organic farmers significantly improve levels of soil organic matter and soil carbon. A recent study from the US found that organically managed soils store more carbon for longer periods, and have on average 44% higher levels of humic acid - the component of soil that sequesters carbon over the long term - than soils not managed organically.[6] There is now a significant body of evidence to show that organic farming practices perform significantly better against a range of other soil health indicators, such as abundance of soil microbes and resilience against flooding and drought.[7] As such, the UK's organic farmers and growers should be acknowledged and rewarded for the provision of these services – and conversion to organic should be more strongly supported.

11. Organic certification and other farm assurances schemes such as LEAF could be used as a proxy for eligibility for soil stewardship payments, but only if a scheme has been shown in peer-reviewed research to increase soil organic matter overall, or if the scheme includes requirements that are proven to increase organic matter sufficiently, through requiring measures such as cover cropping, minimising bare land and reducing compaction. Farmers certified by those schemes could be automatically eligible for soil stewardship payments.

Recommendation 3: Soil monitoring

12. Regular testing and reporting of levels of soil organic matter by farmers should form part of a well-maintained national database, to provide an accurate picture of the state of the UK's soils and help direct funding and research. Investment in soil health research, data collection and monitoring across the UK should fill in the gaps. An accurate picture of the health of soils is vital to ensure that soil conservation and restoration remains an ongoing, long-term priority for successive governments.

Recommendation 4: Farm tenancy agreements

13. Soil health and monitoring should be encouraged by making it a requirement of tenancies that soil health is not degraded during their term. For example, it could become a standard component of all farm tenancies that a measure of SOM be taken at the start of a new agreement, and it would be incumbent on the tenant to ensure levels

are the same or higher by the end of the tenancy. Short farm business tenancies (FBT) are of particular concern because of the harm that certain farm activities and practices can have on soils. Tenancies of less than five years are a disincentive to take measures to protect and monitor soil health over the long term. Making soil health protection and monitoring a requirement of FBT, restrictions on minimum term of tenancies, or steps to incentivise long tenancies should be explored by Government as a matter of priority.

Recommendation 5: Reduce nitrogen fertiliser use

14. Following Scotland's lead, the other nations of the UK should explore the potential of setting a nitrogen budget.[8] This would be a significant step in reducing the dependence of the UK's farming and food system on unsustainable use of nitrogen fertiliser, which has knock-on effects on soil health.[9] While the adoption of Nitrate Vulnerable Zones already limits the use and prescribes the timing of fertiliser applications, it does not appear that NVZs have yet had significant impact. There has been no significant change in agricultural emissions over the last six years, and N2O still accounts for a third of emissions from the farming sector.[10]

15. At the same time, the Government should model and pilot mechanisms to lower nitrogen use in likely event that the voluntary restraint proves insufficient. These could include higher taxes on synthetic nitrogen – if taxed at comparable percentage rate to fuel duty, this would make much of its use uneconomic.[11] A key challenge would lie in devising a practical way, compliant with the UK's international trade agreements, of applying an equivalent duty to embedded nitrogen in imported feed and food. The Government could examine alternative approaches using taxation, caps or regulations on net emissions of greenhouse gases (such as the approach that California adopted when it enacted AB 32 California Global Warming Solutions Act[12]), that could have the twin effect of reducing nitrogen use and incentivising farmers to build soil organic matter.[13]

Recommendation 6: Restoration and protection of lowland peat soils

16. The Government should set up a special climate and soil protection area covering the 20,000 hectares of remaining deep peat in the Fens, with a target of reducing greenhouse gas emissions from the area by at least 80% by 2050 (the UK's legally binding target), by introducing measures including further management of land for the public and wildlife, farming systems to conserve rather than degrade peat, and alterations in the drainage systems to help safeguard peat soils.

17. Drained lowland peat soils – particularly in the East Anglian Fen – are strategically important from a climate change perspective. Emissions from the UK's drained soils account for an estimated 5.2

million tonnes of CO2 per year - the same as total emissions from the chemical industry; slightly less than the total emissions from cement production, and more than double the emissions from the UK's railways.[14]

18. The communities in and around the Fens are reliant on agriculture – either directly or indirectly, and while peat is complex to farm, this land is generally more profitable per hectare and carries a significantly higher land value than most arable soils.

19. The Soil Association has highlighted the very significant soil losses and release of GHGs from the East Anglian Fens, in part because the impact on the climate from just this one area of UK soils is so significant. This problem illustrates the absence of action, from the Government or farming industry, in saving these fragile soils, and in reducing the emissions for which they are responsible.

20. In the Fens there are ambitions to expand the area of land that is already managed primarily for wildlife. Restoration to wetlands and wet pastures brings about an estimated net societal benefit of around £130 per hectare per year.[15] Changing current land management will be a long-term process, requiring a mix of land management. To ensure continuing food production, and to support the local economy, there is a need for land management practices, such as organic farming, that help conserve peat and sit somewhere between intensive arable farming and management for nature.

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