SUSTAINABLE
SOILS
ALLIANCE

March 2021

Wales Agriculture White Paper
Consultation response by the Sustainable Soils Alliance

The Sustainable Soils Alliance (SSA) was launched in 2017 to address the current crisis in our soils. Its aim is to campaign to restore UK soils to health within one generation by seeing soil health elevated to where it belongs as a priority alongside clean air and clean water. The SSA is a non-profit organisation (CIC number 10802764).

Q1: What are your views on:
(a) The proposed approach to the creation of the National Minimum Standards?
(b) The need for flexibility to amend the National Minimum Standards where necessary? Are there any further considerations which are needed?

Please provide comments to support your view e.g. potential benefits and impacts.

We welcome the proposed approach to creating National Minimum Standards and the acknowledgement that, following Wales' departure from the CAP, there will be no statutory regulations protecting soil in Wales and that this review process provides a unique opportunity to address this. Soil is only referenced in passing (fertiliser application) in The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021, a missed opportunity to better reflect soil management's role in delivering clean water, flood risk mitigation, reduced sedimentation etc.

We agree with the proposal to incorporate GAEC 4 and 5 (which require farmers to maintain minimum soil cover as well as to minimise soil erosion and compaction), into the National Minimum Standards.

Of the three soil-specific GAECs, the one that is most fit for purpose – and therefore most applicable to be transferred into a new baseline in its current state is GAEC 5, which requires limiting erosion through land management reflecting site specific conditions. The rule works because it is built around a specific outcome – and so should be applicable for high-risk crops including maize and root crops grown on unsuitable sites demonstrating poor practice.

The incorporation of these two GAECs does not go far enough however, and we regret that there is no mention of GAEC 6 (maintenance of soil and organic matter) within the White Paper. Although GAEC 6 is very weak, with no obligation to measure, no baseline data for existing soil carbon stocks and no mechanisms to establish either compliance or breach (it mainly bans practices like crop residue burning that are long-since abandoned), it is the closest thing there is for mechanism for soil organic matter protection/increase.

This seems out of step with one of the White Paper's overarching ambitions *To increase levels of carbon sequestration through …increasing levels of soil organic matter in improved agricultural land*.

It is also inconsistent with the world-leading position that the Welsh government and people hold as champions of soil health, expressed through the inclusion of *Concentration of carbon and organic matter in soil* among the national indicators in the 2015 *Well-being of Future Generations Act*. If this commitment is to mean anything, it needs to be converted into concrete policy commitments as an example to the other three nations of the UK and internationally – all grounded in regulation.

Q2: What are your views on:
(a) How advice and guidance can effectively support farmers to understand the National Minimum Standards; and
(b) The further considerations needed for advice and guidance? For example, what form guidance should take, who should provide it, the scope of guidance and how farm advisory services may support farmers.

a) The majority of farmers are well-versed in the benefits that good soil health management brings but there may be a terminology barrier when it comes to farmers linking those benefits to the National Minimum Standards. Before going into the mechanics of the system, advice and guidance needs to be developed that demonstrates what the Standards are trying to achieve for them and their soil. If this is done right, the subsequent mechanisms (regulations and incentives) will make sense – and not feel like something imposed upon them.

Farmers tend to be faced with punitive models (e.g. regulatory requirements/tenancy agreements). The Standards need to be designed in a manner that incentivises good soil management, otherwise there will be a lack of uptake. Central to this should be the message that healthy soil delivers productivity (economic) and societal benefits.

(b) Any advice targeted at farmers should be flexible, simple, easy to engage with and encourage straight-forward actions. Farmers should have access to a suite of advice options so they can choose what works for them - including peer-to-peer learning, certification schemes and guidance – rather than simply a dependence on advisors.

We urge the Welsh government to consider formal guidance and the advisory services alongside one another as there are challenges common to both. Guidance aimed at farmers on soil health, soil functions and undertaking new practices for soil health in Wales is patchy. Its evolution over recent decades has been formed by 'unofficial' bodies – universities, research institutes, levy organisations, NGOs, retailers and input manufacturers as well as statutory organisations (DEFRA, NRE etc.).

As a result, farmer understanding and appreciation of soil is also patchy. The connection between soil health and productivity is much better understood than the link between soils and ecosystem services which is a new concept and provides a very different set of goals and associated management challenges.

At the heart of the overall 'knowledge exchange' issue lie two factors 1) the absence of consistent, authoritative and independent guidance on how to avoid, diagnose and remedy soil problems, and 2) the lack of sufficient nationally-coordinated research that provides the evidence needed to deliver sound management guidance on best practices.

The 'consistent guidance' needed would not be a one-size-fits all blueprint but built on the farming enterprise, existing practice, soil type, climate and other factors. As a starting point we would draw attention to the AHDB GREAT Soils extensive programme of research and knowledge exchange on soil management culminating in practical information, case studies, guidance on particular aspects of soil health and a scorecard which helps farmers understand and evaluate the chemical, physical and biological properties of soil.

SLM-driven Guidance would need to balance this with information about compliance, stewardship and the environmental impacts associated with soils. It should also address some critical knowledge gaps including how to remedy soil compaction and degradation, the role of sub-soils, the benefits of land drainage and the understanding and interpretation of soil carbon.

There is also a huge variability in soils knowledge across the advice community caused by a lack of adequate training and moving goalposts. Many advisors - like farmers - are very detached from the ecosystem services soil actions deliver. They have been educated to minimise productivity risks, protect crops and maximise yield without consideration of the disbenefits/public goods.

Across all four countries of the UK, there is a shared need for independent (no conflict of interest), accredited advice. It is a particular problem where advisers are trained to sell one product – they need to be upskilled to deliver a broad spectrum of quality, all-farm advice.

Q3: What are your views on the proposals for civil sanctions to enable proportionate enforcement of regulations? Are there any further considerations which are needed?

We welcome the broad thrust of the proposals on enforcement, however given the lack of statutory protection for soils, 'enforcement' is not yet an issue!

In understanding how to best achieve proportionate enforcement of any future soil-specific regulations in Wales, the example of England, and specifically the 8 Farming Rules for water (FRfW), (introduced in 2018 to achieve regulatory compliance with aspects of the EU Water Framework Directive) is revealing.

The challenge with the 8 FRfW was not so much with the rules themselves, but with their communication, awareness raising, enforcement and clarity about penalties, and these are the considerations that should be born in mind.

- Enforcement action by the EA on breaches remains negligible with 7 warning letters in 2018/19 and 3 warning letters + 5 "advice and guidance letters" in 2019/20. No notices have been served relating to any breach in either year.
- From 2010/11 to 2016/17 - "Total Environment Agency prosecutions of businesses fell by 80%**".** Unchecked UK 2019.
- It used to be the case that on average each farm would be inspected once each 100 years (pers com), but recent cuts to EA budgets have increased this to 263 years. Salmon & Trout Conservation (S&TC) in ENDS 2020.
- UK's enforcement gap - regulatory budgets in the UK have fallen by 41% in real terms over the last decade. Unchecked UK 2019.
- From 2010/11 to 2016/17, the Environment Agency's environmental protection budget fell by 62%. Environment Agency staff fell by 22%. Unchecked UK 2019.
- "The number of water pollution samples taken by the Environment Agency fell by 28%." Unchecked UK 2019.

We would make three observations that we would encourage the Welsh government to heed: 1) Neither fines for non-compliance nor resourcing of enforcement are proportionate to the harm caused by non-compliance. 2) Investment in environmental enforcement generally does not reflect the government's (England) ambition to leave the environment in a better state than that in which they found it. 3) Low levels of communication around the Rules, limited enforcement or measurement of their impact has meant that awareness of the rules among farmers is low – undermining the argument for strict enforcement and sanctions.

A 2018 report by the Rivers Trust, WWF and the Angling Trust estimated that the cost of enforcing existing legislation for agriculture would be as little as £6m a year.

Q4: What are your views on the proposed purposes for funding in support of the delivery of SLM? Are there other purposes which you feel should be considered?

We welcome proposed purposes for funding in support of SLM, including the inclusion of healthier soils, increasing levels of soil organic matter in improved agricultural land and the sustained improvement of soil health. We also welcome the alignment of market and non-market goods and the increase in long-term farm business resilience. Healthy soils are critical to this, they are a societal good in and of themselves and central to the delivery of other outcomes (clean air, clean water, improved biodiversity, actions to reduce global warming).

Q5: What are your views on the proposed priorities for industry and supply chain support? Please provide comments to support your view e.g. potential benefits and impacts.

We welcome the proposed priorities and in particular "*Encouraging greater market alignment by supporting farmers in understanding and producing what consumers and the supply chain want to buy".* However, an important piece of the picture is missing from this list, namely leveraging the supply change/industry to achieve environmental outcomes.

The example of soils is instructive here. Much of the worst soil damage (erosion, nutrient runoff, compaction etc.), take place because farmers are bound by supply chain contracts that lead them to carry out soil management practices (e.g. sew/harvest on waterlogged soils) because they fear the repercussions of failing to deliver produce on deadline.

This pressure is increased because climate change has made weather patterns increasingly unpredictable and the 'window' for low-impact crop management smaller than ever.

It should be emphasised that customers will in many instances be unaware of the impact their contractual expectations are having on farmer behaviours, especially when the regulatory baseline is so low. This needs to be addressed: relevant supply chain players need to be educated about soil management as much as the farmers, and given their share of responsibility for minimising the impact of their purchasing. This will empower farmers to push back on any unrealistic demands.

The principle of shared responsibility needs to be built into any supply chain schemes. It should recognise that 'regulation' goes both ways however, and that supply chain businesses (especially the major brands) have environmental outcomes built into their own strategies, as well as growing consumer expectations that the environmental impact of the products they sell is as low as possible. These expectations can and should be built into supply chain relations.

Q6: What are your views on the proposed purposes for collecting, sharing and linking data? Please provide comments to support your view e.g. potential benefits and impacts.

We agree with the proposed purposes outlined. Indeed, the provision of robust, reliable consistent soils data should be considered a public good in and of itself.

We would add to the list that encouraging soil measurement and monitoring is the critical entry-point for engaging farmers with their soil. It provides a positive feedback mechanism that enables farmers to see that their soils are changing and that their practices are having an effect.

Soil testing is also critical for water quality – especially identifying and preventing run-off which can be improved by good soil management and low till management approaches. Testing water on-farm is equivalent to having a blood test. It picks up the best and worst practices and also effectively monitors the up-stream environment too.

Where possible, we would like to see barriers for data comparison and sharing reduced, mindful of the sensitivities farmers will have about the data which affects their land value. In some instances, it might be appropriate to develop 'tiers' of public availability for certain data – whereby figures are available to feed into a nationwide/local picture, without being so precise as to seem intrusive to the land managers involved.

Q7: What are your views on the establishment of a national database for farms and livestock? Please provide comments to support your view e.g. potential benefits and impacts.

We are strongly supportive of the fact that Welsh Government is committed to national-scale soil monitoring, which is carried out by UKCEH for the Environment and Rural Affairs Monitoring and Modelling Programme (ERAMMP). However, we understand that budgetary cuts have meant that in 2022/23 this will

not report fully on national soil health trends. We would strongly advocate for this to be increased to allow for full national reporting on the state of Wales' soils.

We also note that the current soil monitoring scope only looks at topsoil. We would advocate for this to be increased to include subsoil also, the health of which is a critical indicator for erosion and rapid runoff. We would suggest that Visual Soil Assessment (VSA) to monitor soil structure could be used on-farm to facilitate this and would be happy to share recent work to standardise VSA so that it can be used as a soil monitoring, reporting and management tool for self-evaluation.

This approach to standardised VSA can also provide a subset of data useful for a) regulatory standards – flagging where soil structure is poor to a level where it will cause environmental damage through erosion or runoff, b) soil health management – enabling benchmarking and identification of improvements needed c) national reporting at a subset-level - e.g. reporting on improvement/degradation of on-farm soil structure.

We understand UKCEH are also helping Welsh Government review risks from emerging soil contaminants, such as Antibiotic Microbial Resistance, plastics and pesticides. We believe this work should also be incorporated into national-scale soil health monitoring.

Q8: In terms of the future scheme, what are your views on the proposals to enable the data we collect on a farm to be used by farmers to track progress and demonstrate their sustainability credentials?

As indicated above, we would like to see routine soil monitoring of critical indicators (specifically SOM, bulk density, nutrients, pH) included in the baseline standard. If farmers are to be in a position to receive public money they need to transparently and demonstrably deliver the public goods expected of them.

Farmers should be encouraged to gather and record data about their soils – including physical, biological and chemical characteristics. What is needed is a mixed model that combines simple self-evaluation measures (where immediate results and on-the-spot interpretation are possible/needed) and professional testing where more accurate results are required – e.g. at the start of any scheme, and every five years after that. The farmer-led tests should not aim to quantify an entire field, but, using dip tests in a few GPS-fixed representative areas, to understand overall if it is going in the right trajectory.

If soil monitoring can be successfully embedded, payment by results over the lifespan of an agreement can be achieved – however, this will take time, and the element pertaining to payment by results should not be introduced at the start.

Q9: What are your views on the proposals for improving the monitoring of regulatory compliance? Please provide comments to support your view e.g. potential benefits and impacts.
&
Q10: What do you think needs to be considered in future to enable regulators to effectively monitor regulations?

Monitoring regulation should take advantage of available and emerging technologies wherever possible to lower costs for both farmers and enforcement agencies.

To that end, we would like to see routine soil monitoring, and specifically Carbon/Soil Organic Matter included in the baseline standard. There are a growing number of protocols for measuring and valuing soil health and carbon sequestration that are scientifically robust, affordable and practical at a field level that are already being widely applied. The regular monitoring of a farmer's land condition and recording of this via an app or similar so that the data is freely available should be a prerequisite for public funds.

Embedding soil carbon monitoring into the standards would be a critical step towards driving soil understanding and appreciation throughout land management. Regular, consistent soil testing is the critical gateway to understanding soil's role and functions. It generates a positive feedback mechanism whereby

farmers see that their soils are changing and that their practices are having an effect – motivating them to make continued improvements.

SLM should be the vehicle to drive baseline soil measurement and universal and standardised monitoring, including region/climate/crop specific thresholds for farmers to benchmark against. A standardised approach to monitoring will enable SLM to feed into national environmental commitments and verify value for money to the tax-payer.

It would also send a clear message about the importance of soil carbon as the critical indicator of soil health – for productivity benefits as well as public goods - biodiversity, climate change, and water storage and filtration.

Regular, consistent monitoring according to agreed parameters and thresholds would pave the way in the long term to the creation of a baseline for soil carbon - and we would draw the Welsh government's attention to the example set in Ireland where a guideline threshold for organic matter (3.4%) is set for farmers applying for the Single Farm Payment.

On inspection, applicants will be required to provide the soil analytical report showing the organic matter levels and where it is less than 3.4% they must also show the CC-FAS report setting out, where applicable, the programme of remedial actions. From 2010 onwards, the inspecting officer will check that the remedial actions listed in the CC-FAS report are being implemented. (2009 Soil Organic Matter Guidance).

As you can see, falling below this threshold triggers the need for advice and the development of a strategy, rather than fines. The 3.4% threshold was chosen because it is the figure below which soil structural stability will suffer a significant decline – and where urgent remediation is needed. However, a fair and helpful threshold should be region-specific to reflect soil types (clay content) and climatic conditions (rainfall).

Both the monitoring and the baseline are easy to introduce into regulation and are easy and affordable to support since results (or failure to submit results) can be confirmed remotely, without requiring a farm visit.

Q12: What are your views on how the Welsh Government can support landowners in Wales to benefit from carbon markets for planting trees?

We support the principle of landowners benefiting from carbon markets – but do not think the opportunity should be restricted to tree planting, but extended to other carbon sequestering income streams, including soil carbon.

The 2018-19 Soil Policy Evidence Programme - *Agricultural Practices Review – Mitigation against GHG Emissions* gives an overview of Wales carbon stocks, of areas of high/low density. Soil carbon sequestration can increase these stocks but badly managed soil can be a major source of greenhouse gas emissions and the degradation of carbon-rich soils releases significant quantities of CO_2. Sequestration and protection need to be considered hand in hand and incentivised accordingly.

It is crucial to note that soil carbon sequestration is not only about climate change mitigation, but a variety of ecosystem benefits – biodiversity, clean water, flood risk management etc. Indeed the evidence base that underpins these services is generally stronger than it is for GHG reduction - where there remains scientific debate around realisable carbon sequestration from agricultural soils.

The role of soil carbon in underpinning a broad range of ecosystem services is acknowledged in the UN System of Environmental-Economic Accounting Experimental Ecosystem Accounts (SEEA-EEA). The UK's Natural Accounting roadmap, based on SEEA-EEA guidance, includes both soil carbon sequestration and stock in its initial sets of accounts for 2016 (ONS, 2018).

Thanks to the range of ecosystem services that soil carbon generates, land management practices that sequester carbon are increasingly being incentivised by market-based mechanisms (off-setting, ecosystem services etc.) that pay farms for the carbon they capture and store. However these schemes operate to separate legal, practical and measurement criteria and these divergence risks cause confusion for farmers, investors and policy-makers, market fragmentation, the undermining of stakeholder confidence and soil carbon sequestration's long-term economic and environmental potential.

We see a clear role for the Welsh government here in addressing this market fragmentation by supporting the creation of a Farm and Soil Carbon Code, a neutral, open-access platform that would be accessible to all farmers and robust enough to be adopted by operators of carbon offset registries, carbon capture incentive schemes (offsets, payments for ecosystem services and environmental investment products).

In addition, we would like to see the Welsh government promote a consistent approach to the monitoring, reporting and verification of net carbon transfer through the creation of a robust MRV framework that would be applicable for any given agricultural field in Wales using the latest tools and technologies.