Llywodraeth Cymru
Welsh Government

Agricultural Soil Policy Statement 2025

Contents

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Mae'r ddogfen hon ar gael yn Gymraeg hefyd / This document is also available in Welsh
Rydym yn croesawu gohebiaeth a galwadau ffôn yn Gymraeg / We welcome correspondence and telephone calls in Welsh

01

Introduction to Agricultural Soil Policy Statement 2025

Agricultural soils are an ecologically, economically, and socially valuable resource for Wales. They are considered a finite resource, due to slow formation rates. This agricultural soil policy statement sets out the vision for protection and sustainable management of soils in Wales and acknowledges the crucial functions and services soils provide:

- providing the basis for food, biomass derived energy, and raw materials
- regulating environmental cycles of nutrients and carbon
- providing valued habitats and sustaining biodiversity
- regulating water flow and quality
- regulating climate and mitigating some impacts of climate change
- preserving cultural and archaeological heritage
- providing a platform for infrastructure.

Agricultural soils are defined as soils under agricultural management for crops, grasslands and semi-natural habitats.

This definition includes all grasslands; semi-natural habitats (including peat soil under restoration and peat under intensive agriculture); arable, bioenergy and fodder crops; horticulture; agroforestry; paddocks; all nature conservation designated sites (e.g. SSSI, SAC) under agricultural management; and, all areas under agri-environment scheme agreements.

02

Why do Welsh soils need protecting?

Agricultural soils in Wales are distinctive and are generally in good condition. Large areas of managed grassland and wet climatic conditions (which generated large areas of peat and organo-mineral soil) have resulted in a greater carbon content than most soils in England and Europe. Soil changes slowly, and the impacts of our actions today may not be seen for many years. There is also much that we still do not know about soil. To prevent future degradation of our soils we need to develop knowledge and start taking action now to build resilience.

The Welsh Government Soil Evidence Review (2022)[1] identified a number of current threats to the ability of soil to effectively deliver the services we rely on and others which are emerging. Current threats include loss of soil organic matter, soil erosion, loss of soil structure and compaction, reduced soil biodiversity and imbalanced soil nutrient cycles. Key emerging threats resulting from climate change and agricultural management change, which are interconnected and are expected to further increase pressures on soils.

Climate Change

Climate has a direct influence on processes of soil formation and affects soil properties and functions. Climate change is already impacting soils through extreme events like floods, fires and droughts, and is anticipated to have a greater impact on the functionality and agricultural potential of Welsh soils in the future. Changing climate is expected to impact soil wetness, soil organic matter and carbon stocks, the structure and function of soil biological communities, and nutrient cycling. These are expected to drive agricultural management change (e.g. longer growing seasons increasing the viability of arable farming). Management of soils should aim to protect and maintain soils' function of climate regulation and enhance soils' capacity to adapt to pressures under a changing climate.

Agricultural Management Change

Agricultural management change refers to shifts in soil use and management within agriculture; for example, changing from less intensive soil uses (e.g semi-natural grassland) to more intensive soil uses (e.g. arable), or changing practices like tillage or fertiliser use. Evidence shows that changes towards agricultural intensification result in negative effects on fundamental soil properties and functions, for example carbon storage. Additionally, management changes can influence climate, e.g. through increasing greenhouse gas emissions. Careful consideration is needed when proposing an agricultural management change to ensure soil functions are not impaired and soils maintain resilience for now and future generations to come.

1 Review of Welsh soil evidence | gov.Wales

03

What is our vision for agricultural soils?

Vision

Resilient agricultural soils providing functions and services for current and future generations, nature, and climate through sustainable use and management.

04

Why an Agricultural Soil Policy Statement?

There is currently no overarching soil policy or specific regulation for soil protection in Wales. There are policies relevant to soils in place, but they are spread across many policy areas, and generally limited to specific functions or impacts of soils. This limits their combined effectiveness to protect soils. This soil policy statement provides a coherent vision and broad ambitions for sustainable soil management to address this gap. It does not set out new policy measures or contain detailed guidance for practitioners. It is not a regulatory document.

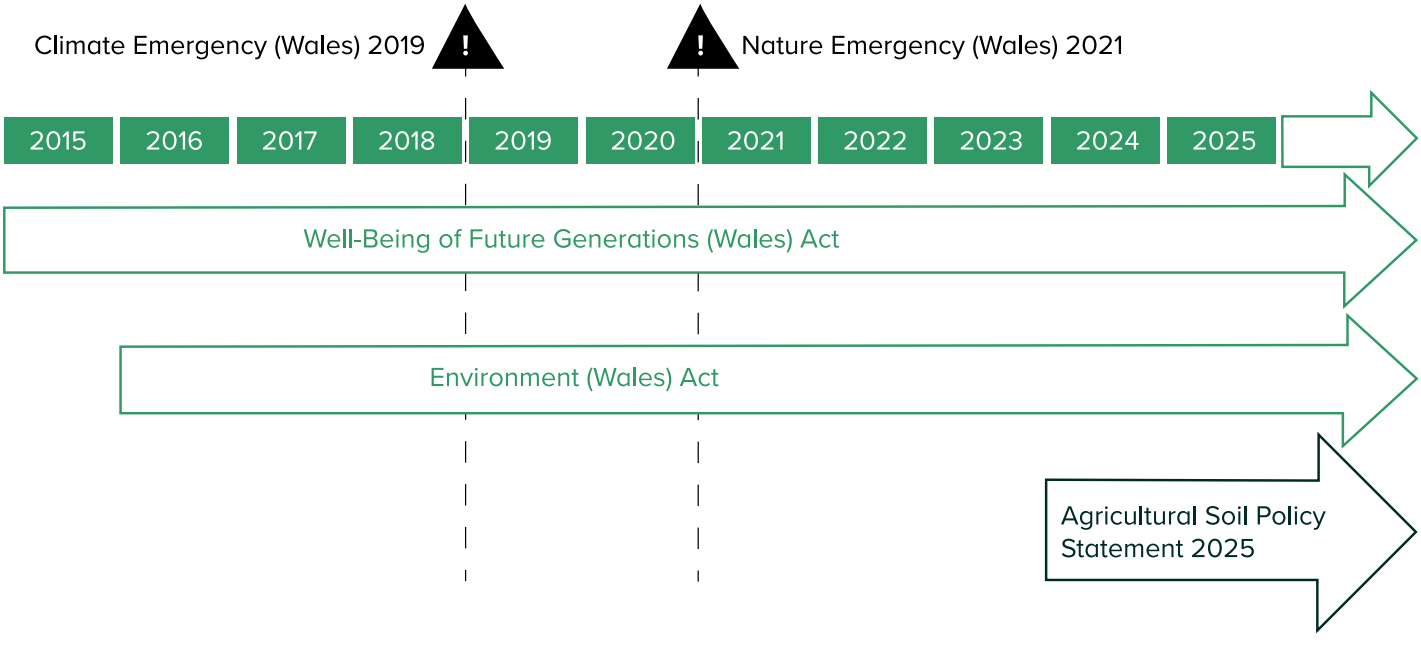
This soil policy statement focuses on agricultural soils as they represent at least 80% of the land area in Wales[2], and their management is directly relevant to The Agriculture (Wales) Act, Sustainable Farming Scheme and Enviroment (Wales) Act 2016 in Wales. The ambition is to review this statement periodically and consider other soil under other uses for inclusion in future updates.

2 Natural Resources Wales/Area Statements and farmers, foresters and land managers

The Current Policy Landscape

The Welsh Government 'embeds our response to the climate and nature emergency in everything we do'. The soil policy statement has direct relevance to addressing the national declarations of Climate (2019) and Nature (2021) Emergencies. The statement is framed within the Well-Being of Future Generations (Wales) Act (2015) and the Environment (Wales) Act (2016). These promote the sustainable management of natural resources (SMNR) to address their long-term decline, without compromising needs of future generations.

Figure 1:



For more detailed information on the policy context, see the ASPS Policy Landscape Figure available at www.gov.wales/agricultural-soil-policy-statement.

05

How will we move towards our vision?

Vision

Resilient agricultural soils providing functions and services for current and future generations, nature, and climate through sustainable use and management.

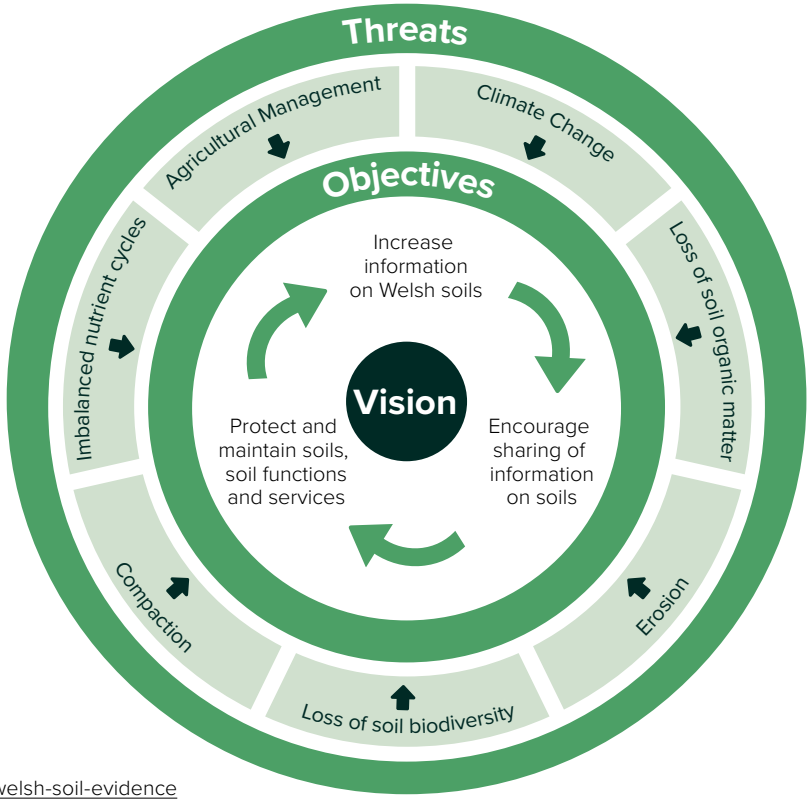
Objectives

- Increase information on Welsh soils
- Encourage sharing of information on soils
- Protect, maintain and enhance soil functions & services

The soil policy statement has been developed through extensive evidence review[3] and stakeholder engagement[4].

The objectives laid out in this statement are interconnected. Each objective is important for protecting against current and emerging threats and achieving resilient agricultural soils for current and future generations, nature, and climate.

Figure 2:



3 www.gov.wales/review-welsh-soil-evidence
4 Farmer Engagement Research Report and Stakeholder Feedback Report available at www.gov.wales/agricultural-soil-policy-statement

Objective 1: Increase information on Welsh soils

Promote monitoring of soil, at local as well as national scales, to enhance understanding of trends, threats, and opportunities for achieving resilient soils.

The soil, land use and climate of Wales is different to most of the UK. Existing data has provided an important national snapshot of the current state of soils in Wales (e.g. stable trend in soil organic matter content on improved land). Collecting more detailed, long-term information on Welsh soils would help to track trends, target interventions, assess the effectiveness of policies and practices for protecting soils, and shape future approaches. Filling the gaps in knowledge and evidence will also be important in light of the new challenges soils may face from climate change.

Our engagement with farmers has highlighted the importance of collecting data at field and farm scales, as this is most relevant to inform farm-level interventions. Feedback also indicated that data must be shared in a timely, accessible and meaningful way to effectively support sustainable soil management.

Objective 2: Encourage sharing of information on soils

Promote effective exchange of knowledge between farmers, land managers, decision makers, advisors, and researchers, to enable optimal decision-making for resilient soils.

Welsh farmers have managed most of the soil in Wales for generations and have a good understanding of what's beneath their feet. They have crucial knowledge to share and can also benefit from information and advice from a range of sources.

Our engagement with farmers indicates that the most effective knowledge exchange involves sharing practical experience and quality unbiased information in accessible ways. This can enable all parties to make effective decisions to protect and maintain agricultural soils, in policy and practice. Effective knowledge exchange will be critical to mitigate and adapt to increasing pressures in a changing climate.

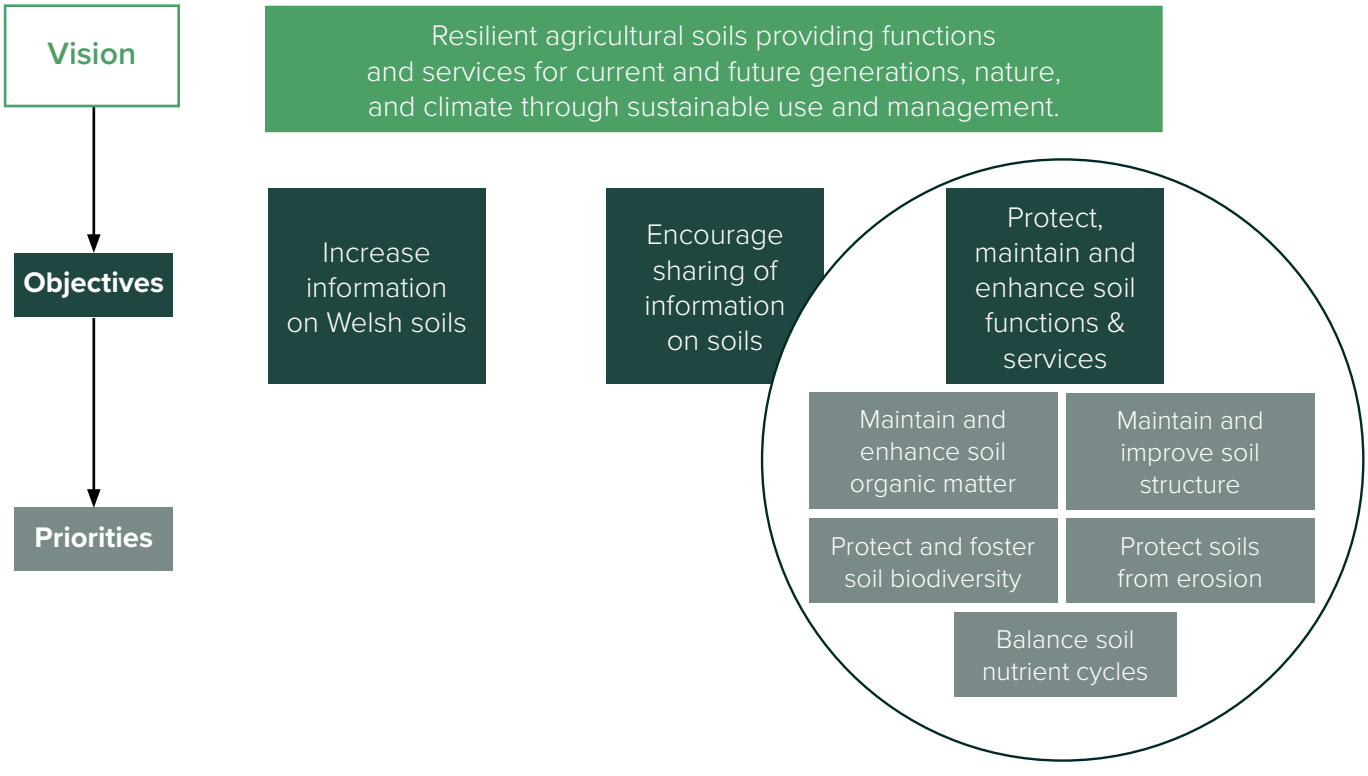
Objective 3: Protect, maintain and enhance soils, soil functions and services

– **Protect soils and their functions from existing and emerging threats.**

– **Maintain and enhance soil functions and services to ensure future soil resilience.**

Five priorities for this objective have been identified from the evidence review and stakeholder engagement. As soils and soil functions are complex and interconnected, there will be overlaps or trade-offs between priorities, and other ways to protect, maintain and enhance soils which have not been highlighted.

Figure 3:



The table below illustrates the benefits to soil functions that each of the identified priorities can achieve:

Soil function benefits of achieving priorities to protect, maintain and enhance Welsh agricultural soils

Table 1:

Soil function benefited	Priority to protect, maintain and enhance soils: Maintain and enhance soil organic matter	Balance nutrient cycling	Protect soils from erosion	Maintain and improve soil structure	Protect and foster soil biodiversity
Food and biomass production	Strong benefit	Moderate or localised benefit	Moderate or localised benefit	Strong benefit	Moderate or localised benefit
Regulating environmental cycles	Strong benefit	Strong benefit	Slight benefit	Slight benefit	Strong benefit
Habitats and biodiversity	Strong benefit	Strong benefit	Moderate or localised benefit	Moderate or localised benefit	Strong benefit
Regulating water flow and quality	Strong benefit	Strong benefit	Strong benefit	Strong benefit	Slight benefit
Climate change mitigation and adaptation	Strong benefit	Strong benefit	Slight benefit	Moderate or localised benefit	Moderate or localised benefit
Cultural and Historical	Slight benefit	Slight benefit	Moderate or localised benefit	Slight benefit	Slight benefit

Strong benefit Moderate or localised benefit Slight benefit

Maintain and enhance soil organic matter

Maintain current stores of soil organic matter, and increase where appropriate, through effective soil management.

Soil organic matter has multiple benefits to soil fertility, soil biodiversity, soil structure, soil water retention and carbon sequestration. It contains a large proportion of soil carbon (between 50% – 60%). Soil organic matter levels are typically high in Wales due to large extents of organic-rich soil (peat and organo-mineral soil) and land managed under low intensity grasslands. Careful consideration is needed when proposing agricultural management change which could trigger a loss of soil organic matter. Increasing the storage of organic matter where it has been depleted can be beneficial, provided this is managed in a way which minimises risks of nutrient build-up and pollution. Maintaining and increasing soil organic matter can also increase soils' resilience to impacts of climate change.

Protect soils from erosion

Protect soils from erosion through appropriate management in areas at risk.

Most Welsh soils are under permanent grassland, which is beneficial for preventing erosion, if managed appropriately. However, erosion processes can be localised and intense, resulting in hotspots where significant soil loss can occur. Sloping areas and sandy/silty or organic soils are at a higher risk to erosion from water or wind. The predicted rise in frequency and severity of extreme weather events under climate change is expected to increase the risk of soil erosion. Agricultural management choices can reduce erosion risk, such as by decreasing the area of exposed soil. Reducing erosion has multiple benefits to soil structure, agricultural productivity, air and water quality, soil biodiversity and climate regulation.

Maintain and improve soil structure

Maintain and improve soil structure, with a focus on minimising soil compaction through appropriate management during high-risk wet conditions.

Agricultural soil in good structural condition allows drainage of water, movement of air and unrestricted growth of roots. This supports greater agricultural productivity, more efficient nutrient uptake, reduced water pollution and flooding, as well as increasing soils resilience to the impacts of climate change (such as increased extreme weather events).

A key threat to soil structure is soil compaction and wet soils are particularly susceptible. There is a potential high risk of compaction in Welsh soils as many are wet for most of the year due to slow permeability and high rainfall, or high groundwater. Our engagement indicated that compaction is a key problem for many Welsh farmers and that careful agricultural management is needed during high-risk wet conditions. Although compaction can be alleviated this can be costly, complex and challenging, particularly for sub-surface layers.

Protect and foster soil biodiversity

Protect and foster soil biodiversity through appropriate management.

Soil is the most biodiverse singular habitat containing nearly 60% of life on the planet. Soil biodiversity refers to the quantity and variety of organisms, such as earthworms and microbes, that live in soil. Soil organisms support the multifunctionality of land ecosystems to cycle nutrients, produce food, store carbon and support habitats. As soil organisms are the driving force behind most soil processes, changes in soil biodiversity can significantly impact soil functions. Limited evidence exists on the trends in soil biodiversity in Wales, but changes can occur because of agricultural management, loss of organic matter, extreme weather and soil pollution. Threat of losses to soil biodiversity and its associated functions is generally lower in low intensity compared to high intensity agricultural systems. Climate change is likely to alter the abundance and diversity of soil organisms, and their interactions between each other and with plants.

Balance soil nutrient cycles

Balance soils' nutrient cycling to ensure the effective delivery of soil functions and services.

Nutrient cycles describe the storage, use, movement, and recycling of nutrients like nitrogen and phosphorus in the environment. During these processes nutrients can be transformed into plant available forms, held in the soil, or lost to air or water. Balanced nutrient cycling provides sufficient nutrients to deliver soil functions and maintain soil fertility whilst minimising losses to the environment. This has benefits in terms of agricultural efficiency, nutritional quality of food, minimising water and air pollution and climate impacts.

Although there is limited evidence for Wales, evidence from across the UK shows that the majority of agricultural soils have an excess of nitrogen and phosphorus. The main disruptor of nutrient cycles on agricultural soils is nutrient loading. Whilst inputs of nutrients are important in farming systems for maintaining productivity, build-up in excess of the needs of the system can cause imbalance. Nutrient cycling can also be disrupted by agricultural management change, loss of soil biodiversity, erosion, and climate change.

For more information on the ASPS:

– WG Soils webpage
– WG Soils Evidence Review
– Farmers Engagement Report
– Stakeholder Engagement Findings and Response
– Policy Landscape figure