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Organic farming and the North Wessex Down National Landscape

**Rapid Evidence Assessment of the impacts of organic farming on
Climate, Nature, People and Place in the context of the North
Wessex Down National Landscape**

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April 2026	Rowan Dumper-Pollard, Christian Gossel, Julia Cooper, Giulia Kessous	VI.0

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I. Introduction

I.1 Organic farming in the context of the North Wessex Downs

The North Wessex Downs National Landscape is a nationally designated protected landscape of exceptional ecological, cultural and scenic value. Management priorities for 2025–2030 emphasise the need to deliver integrated outcomes for climate, nature, people and place, recognising that land management sits at the heart of these ambitions. The plan outlines key policies in the areas including: Landscape (LA), Farming & Land Management (FLM), Natural Resources & Climate Change (NR), Planning & Development (DE), Communities (CO), and Access, Recreation & Tourism (ART).

The national landscape covers an area of 1,730 km² within which sits a wide range of land uses with their own set of needs and impacts. The landscape is characterised by its geology, specifically the limestone bedrock which supports the 8 landscape types in the area (Figure 1).

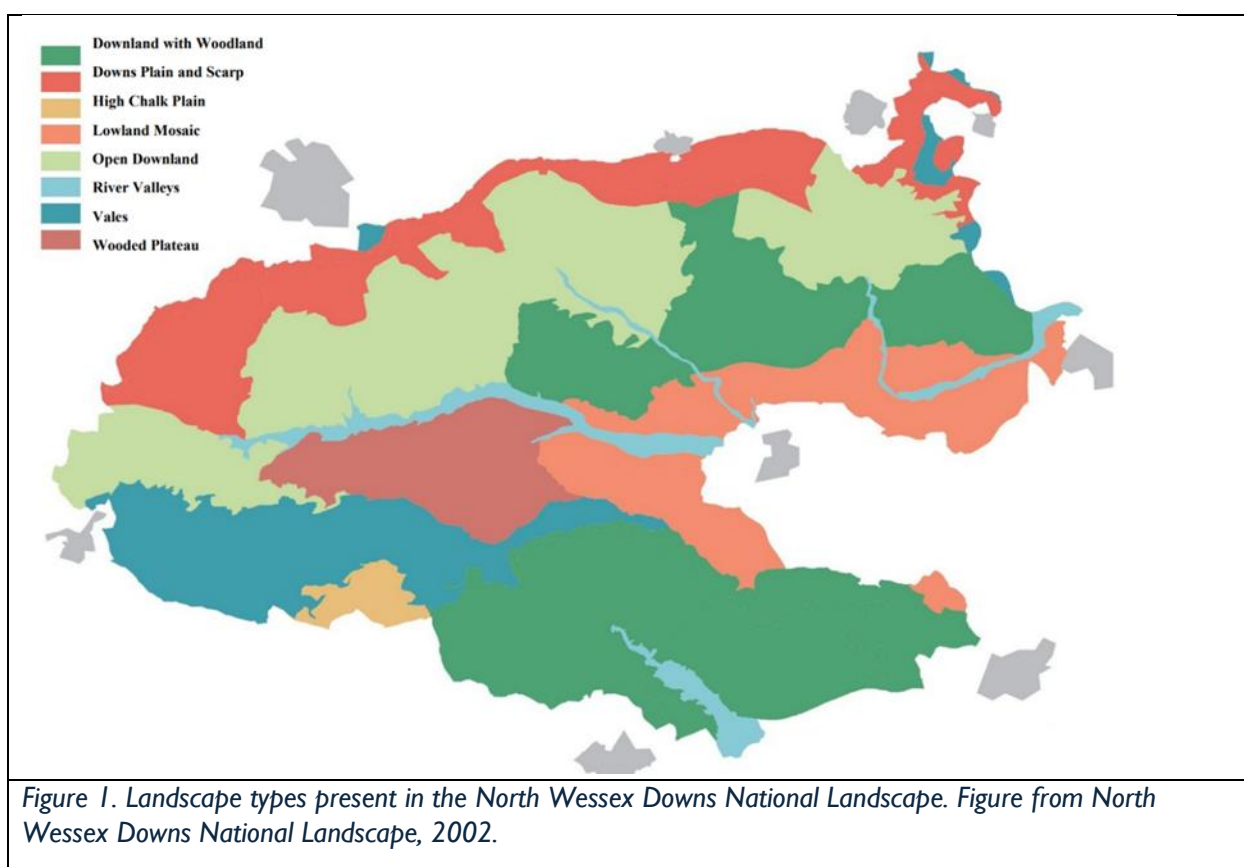
The dominant land use across the area is agriculture (84% of total area), with 54% of farms producing cereals or other arable crops (excluding horticulture) and 32% primarily grazing livestock. The other primary land use is woodland (16% of total area), a third of which is classed as ancient woodland.

Chalk landscapes provide unique habitats such as chalk grasslands and chalk rivers/streams. These habitats support rare plants, insects, and other wildlife that are globally endangered. At the same time these landscapes are also picturesque, working alongside the 2,858 km of rights of way, 103km of national trail, 15 parks and gardens, and a UNESCO world heritage site to bring in visitors from around the UK and overseas. The population of the NWDNL is ~100,000, of which around 2,200 are estimated to be employed by tourism in the region.

Organic and agroecological farming systems offer a coherent, systems-based approach to delivering the NWDNL priorities simultaneously. By reducing external inputs, enhancing biodiversity, and supporting resilient rural economies, organic farming aligns strongly with the overarching purpose of conserving and enhancing natural beauty while sustaining viable land-based livelihoods.

Various recent reviews have highlighted the potential for organic farming to deliver multiple public goods aligned with the North Wessex Downs National Landscape's priorities. For **nature**, the evidence is consistently positive, with higher levels of biodiversity—particularly pollinators, arable flora, birds, and soil organisms—alongside reduced pesticide impacts and some improvements in water regulation services, although nutrient losses show mixed results (Walker et al., 2025; Sanders et al., 2025; Randall & Erskine, 2025). For **climate**, findings are more nuanced: organic systems tend to enhance soil structure, water retention, and related climate adaptation functions, and can reduce greenhouse gas emissions per unit area, though results are less consistent when measured per unit of output (Randall & Erskine, 2025). In relation to **place**, organic farming can support more diverse, multifunctional landscapes, with the greatest biodiversity benefits observed in more intensively managed areas, emphasising the importance of landscape-scale approaches (Smith et al., 2020; Tscharncke et al., 2021). For **people**, the evidence is less clear-cut: while some studies indicate improved farmer satisfaction, wider economic and labour outcomes are influenced more by farm structure, business models and farmer characteristics than by organic management alone (Lobley et al., 2009; Bouttes et al., 2020).

The current policy context suggests a timely opportunity to review the role of organic farming within the North Wessex Downs National Landscape. The Government’s Environmental Improvement Plan, with its ten goals for improving the natural environment, aligns closely with evidence (see the soon to be published review for Defra by Cooper et al. 2025) that organic systems can deliver multiple environmental benefits across biodiversity, soil, and water outcomes. Recent updates to the Sustainable Farming Incentive (2026) further reinforce this direction, with the reintroduction of payments for organic conversion and continued support for organic maintenance, recognising both the environmental value and higher management costs of these systems. At the same time, the emerging Land Use Framework places strong emphasis on multifunctional land use—balancing food production, nature recovery, and wider societal needs—creating a clear policy space for approaches such as organic farming. The extension of Farming in Protected Landscapes (FiPL) funding to 2029, supporting delivery of the Government’s 30by30 target, adds further impetus within designated landscapes. Alongside this, increasing regulatory and public pressure to address water quality issues, and the shift toward catchment-scale planning, highlight the need for land management approaches that can contribute to integrated solutions. Taken together, these developments indicate that this is an appropriate moment to assess the potential role, benefits, and trade-offs of promoting organic farming in the North Wessex Downs National Landscape.



1.2 Purpose and scope of the report

There is a growing and increasingly robust evidence base on the ecosystem services delivered by organic agriculture, alongside a clearer understanding of the trade-offs associated with its adoption, particularly in relation to yields and resource use. This improved evidence allows for a more nuanced assessment of where and how organic farming can deliver the greatest benefits, making this an appropriate point to review its advantages and limitations in the context of the North Wessex Downs National Landscape (NWDNL). This report synthesises the evidence base that organic farming practices can deliver on many of the FiPL priorities of Climate, Nature, People and Place, as outlined in the 2025 – 2030 NWDNL Management Plan (Figure 2). It draws on a rapid evidence assessment (REA) of available literature to identify key benefits, trade-offs and evidence gaps, and to inform future programme delivery and investment.

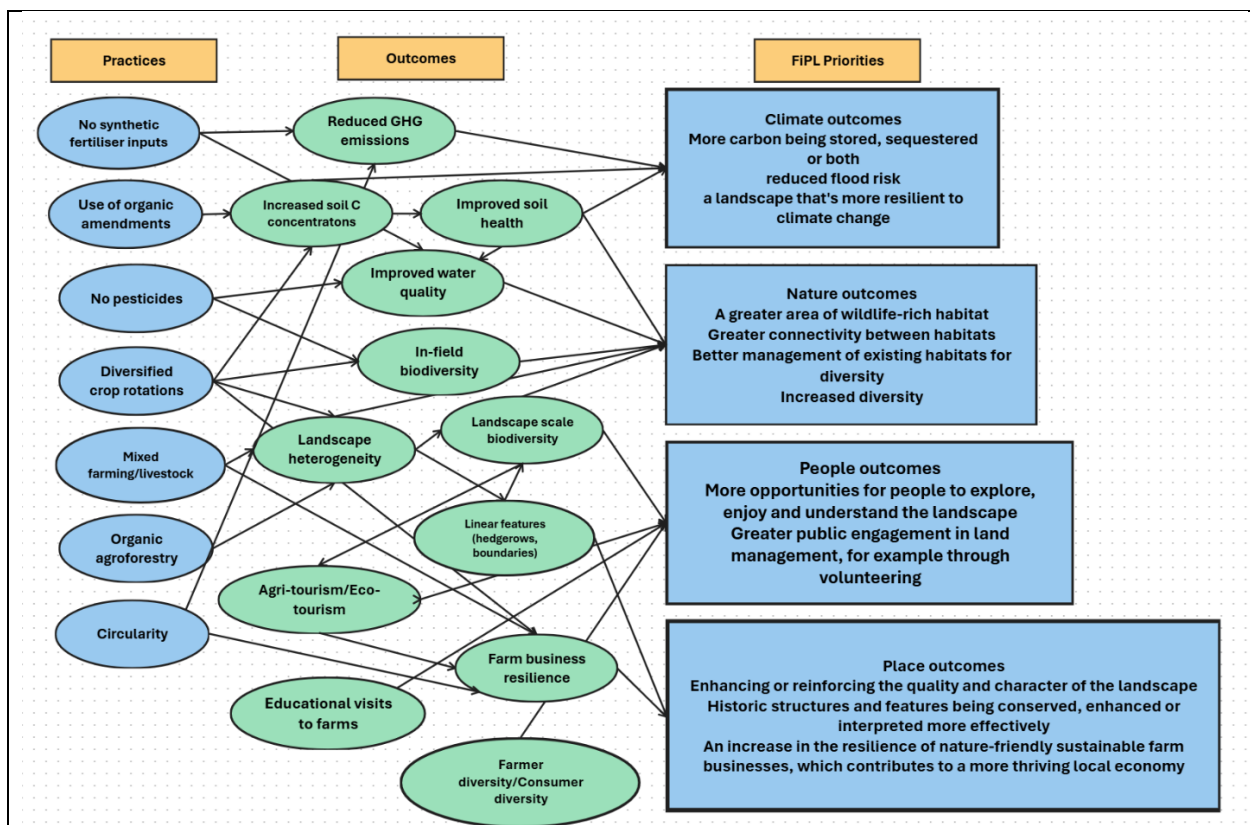


Figure 2 Concept map illustrating the relationships between farming practices and outcomes linked to FiPL priorities used as a framework for this study.

2. Our approach: Rapid Evidence Assessment (REA)

2.1 Methodology

To ensure a representative summary of literature on organic agricultural impacts a Rapid Evidence Assessment method was developed. This method follows an established format utilised by DEFRA in their commissioned research (Collins et al, 2015). The primary search was conducted using Web of Science, a popular and comprehensive database of peer reviewed articles. Where the initial search yielded insufficient results, additional sources in grey literature and through other search engines, i.e. google scholar, were identified.

For each of the FiPL topics (Climate, Nature, People, Place) a series of search terms were developed ([Appendix A](#)) for entry into Web of Science, with similar terms being used for wider grey literature searches where appropriate. Key relevant sub-themes were identified to narrow down the literature search, increasing the relevance to the NWDNL.

After initial searches the titles, abstracts, and keywords of returned papers were reviewed for relevance by location (UK/North Wessex Downs), farming system, and topic (relevance to sub-theme). Where there were a large number of papers the results were also refined to only include review articles.

This systematic review approach provides a clear strength in being structured and transparent, ensuring that evidence was identified, selected, and synthesised in a consistent and reproducible way. However, it is also subject to limitations, including its time-bound nature, potential publication bias, and a relatively limited pool of UK-specific studies, which may constrain the direct applicability of findings to the North Wessex Downs context.

Artificial intelligence (AI) tools were used in the final stages of drafting to support clarity, structure and readability. All research, analysis, interpretations and conclusions presented in this report were developed independently by the authors.

4. Climate

The climate outcomes specified by FiPL in the NWDNL can be categorised as either mitigation or adaptation effects. Mitigation refers to “more carbon being stored, sequestered or both”; this could mean both increases in soil carbon storage or increases in woody biomass (hedges, woodland, agroforestry); reductions in emissions are not explicitly mentioned in the FiPL targets for the NWDNL, but are referred to in the management plan. Adaptation in the NWDNL centres around “reduced flood risk” during periods of high rainfall, and improved resilience to drought during hot, dry periods.

4.1 Soil carbon sequestration in organic farming systems

The initial keyword search for literature on soil carbon sequestration in arable cropping systems under organic management in Web of Science identified 106 studies; a rapid manual screening resulted in 10 papers being identified as most relevant to the North Wessex Downs context; papers published in the last two years since the Evidence Review for Defra (Cooper et al. 2025) were prioritised.

The evidence for higher levels of soil C in organically managed soils is strong. In a recent review of evidence for environmentally friendly farming (including organic) for Defra, a significantly higher probability of organic management resulting in higher soil organic C was reported when results from over 50 studies in Europe were synthesized (Cooper et al., 2025). This reflected findings by Gattinger et al. (2012) who reviewed a wide number of studies comparing organic and conventional systems and reported higher SOC (soil organic carbon) concentrations, stocks and sequestration rates in organic systems. More recently, Zhao et al (2024) also confirmed in a meta-analysis higher soil organic carbon concentrations and stocks in organic farming systems. Another study of soil monitoring data in Bavaria over time (1986-2016) reported a strong relationship between the number of years a site was farmed according to organic principles and increases in SOC and N (Wiesmeier et al. 2025).

However, it should be emphasized that higher concentrations (% soil carbon), stocks (soil C in tonnes/ha) and sequestration rates (change in soil C over time) do not always equate to climate mitigation. Carbon levels in soils can increase but at the same time “leakage” of other GHGs like nitrous oxide and methane can negate these effects (Don et al. (2024)). Energy use from production of organic inputs like composts needs to be taken into account, as well as losses of soil carbon from the additional land needed to produce food if organic farms have lower yields and, finally, many organic farms rely on imported carbon, thus depriving other locations of carbon inputs (a “robbing Peter to pay Paul” situation). For these reasons, caution should be taken when making claims about climate mitigation due to increases in soil C levels.

In contrast to the findings from the Cooper et al. (2025) review, a recent analysis of large datasets from soil monitoring of real farms in Germany did not confirm that organic farming results in elevated soil carbon contents (Don et al. 2025). They analysed data from nearly 3000 sites in Germany and did not detect significant differences in SOC contents or stocks, even though the organic crop rotations included more SOC enhancing crops. Since organic yields in this study were on average 31% lower than conventional, crop residue return to the land was also lower in the organic system. The authors also postulated that N-mining by microbes under N-limited conditions could be stimulating decomposition of soil organic matter (i.e. N-starved organisms are breaking down soil organic matter reserves to access

N). It should be noted that differences between organic and conventional systems commonly reported (e.g. more livestock in organic systems, more mixed farming, more use of organic inputs) were not present in the German study. This may explain why there were no differences between organic and conventional farming in this study: the key practices associated with enhanced soil carbon were present in both farming systems.

Including ley phases in arable rotations is one key organic practice with strong evidence for improving soil carbon contents and overall soil health. This has been recognized in recent options in SFI which support the inclusion of 1-3 year herbal leys (SAM3) and legume leys (NUM3) in arable rotations (DEFRA, 2025). Ley phases can increase the quantity and quality of carbon in soils. McDaniel et al. (2023) found that diversifying and extending the duration of living plants in rotations leads to greater retention of new residue inputs. Mooshammer et al. (2022) suggested enhanced stabilisation of microbial-derived soil organic matter (SOM) and functional shifts in the microbial community as a common mechanism for positive effects of diverse rotations on SOM dynamics.

A recent study in northern Germany (Eismann et al 2025) documented the potential of different crops to act as carbon sinks by measuring the Net Ecosystem Carbon Balance (NECB) over a crop rotation of grass-clover ley-spring wheat-cover crops or grass-clover ley-winter wheat-cover crops. They demonstrated that the grass-clover ley phase acts as a strong carbon sink with a NECB of -1386 kg C/ha over its two-year growth period. They highlighted the potential of organic ley-arable systems for climate mitigation and advocated management practices like moderate grazing, spring soil cultivation, and organic fertilisation to enhance soil C storage.

4.2 Other effects of organic farming on GHG emissions

GHG emissions by measurement or modelling were included in the Web of Science search. A total of 149 studies were identified using measurements (flux, release, emissions) and 54 using modelling/LCA approaches; there was considerable overlap between these two searches. Ultimately, 7 studies were identified for more in-depth review.

The NWDNL management plan refers to managing landscapes to reduce emissions of greenhouse gases such as carbon dioxide, nitrous oxide and methane. Many of the sources of emissions in conventional farming, particularly nitrogen fertilisers, as well as pesticides, P and K fertilisers, are not permitted in organic farming. This results in lower emissions from these sources. However, organic farms often include livestock which can add to the farm's overall carbon footprint, particularly methane emissions from ruminants. The complexity of defining boundaries for studies on GHG emissions from agricultural systems and the functional unit (area versus product) makes it more difficult to get a clear picture of the relative emissions from organic and conventional farms.

Reducing N fertiliser use and incorporating more ley phases into rotations is one way to reduce the carbon footprint of an arable farm. A detailed systematic review and meta-analysis of 77 comparisons between organic and conventional cropping systems using life cycle assessment methods, found that independently of the functional unit (mass or land-based) and despite lower yields, organic systems had better environmental performance than conventional systems, including climate change (Boschiero et al. 2023). This was confirmed in a systematic analysis of peer-reviewed studies which found that on average

organic food has a lower impact on climate than conventional, both when assessed per unit area or per unit product (Chiriaco et al. 2022).

For arable crop productions specifically, a long-term trial in the United States used a GHG emissions model to predict emissions from a conventional system compared to an organic manure-based system and an organic legume-based system (Graham et al. 2025). **Error! Reference source not found.** shows that for both of the conventional systems (CNV) a large percentage of emissions are associated with the manufacture of N fertiliser, which does not factor into the carbon footprint of the organic systems. Even when emissions were scaled to crop yield, organic systems still had lower emissions than conventional, due to the absence of emission from N fertilisers.

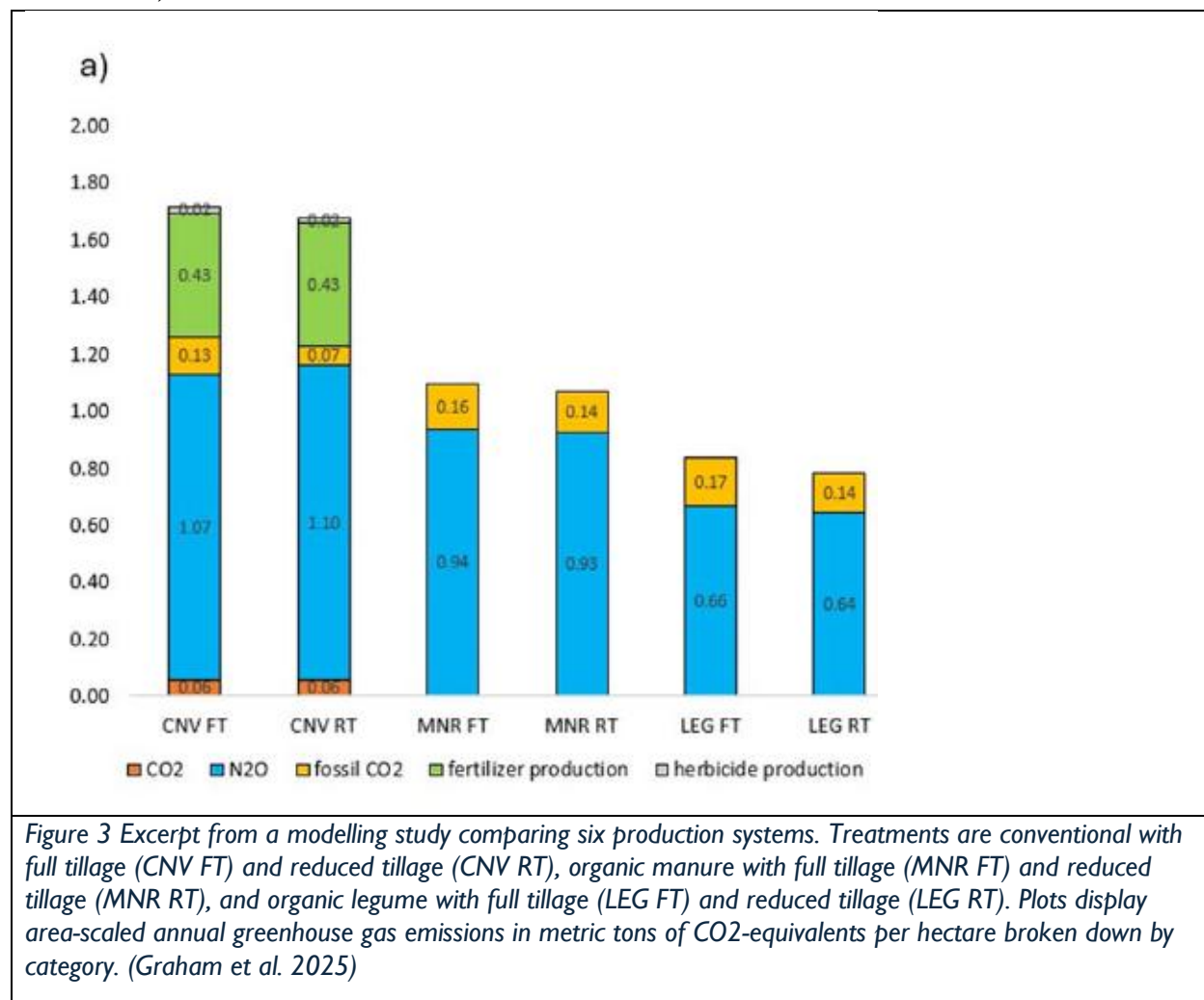


Figure 3 Excerpt from a modelling study comparing six production systems. Treatments are conventional with full tillage (CNV FT) and reduced tillage (CNV RT), organic manure with full tillage (MNR FT) and reduced tillage (MNR RT), and organic legume with full tillage (LEG FT) and reduced tillage (LEG RT). Plots display area-scaled annual greenhouse gas emissions in metric tons of CO₂-equivalents per hectare broken down by category. (Graham et al. 2025)

N fertiliser use can be reduced by integrating more legumes into rotations. Minafra et al. (2026) reported that emissions could be reduced by more than half if a conventional arable rotation with no legumes was converted to an arable organic rotation with legumes. They attributed value to the N fixed by the legumes as a co-product that acted as an N input to the following cereal crop.

4.3 Climate impacts of organic livestock production

Studies on emissions from livestock in organic systems were identified using species-specific search terms and returned primarily modelling and life-cycle analysis studies. Most studies were on dairy systems (26), poultry systems were the next most common (13), followed by pigs (7) and sheep (4). A rapid review of the titles and abstracts was conducted and those most relevant to the NWDNL were downloaded for detailed review.

The literature on greenhouse gas (GHG) emissions and carbon footprints in organic versus conventional livestock systems presents a complex and sometimes inconsistent picture, reflecting differences in system design, productivity, and methodological approaches. Several studies highlight that while organic systems often reduce certain emission sources, trade-offs related to productivity, land use, and system boundaries complicate direct comparisons.

A detailed life cycle assessment by Jeswani et al. (2018) examined a large, mixed organic farm in southwest England, encompassing arable crops and multiple livestock enterprises. The study reported an average global warming potential (GWP) of 2.65 t CO₂e per hectare annually (2118 t CO₂e/year across the farm). Livestock—particularly dairy and beef cattle—were the dominant contributors, accounting for 45% and 39% of total emissions respectively, largely driven by methane from enteric fermentation and nitrous oxide from manure management. However, the absence of a direct comparison with conventional systems limits the ability to contextualise these findings in terms of relative performance.

Similarly, Costantini et al. (2020) analysed organic egg production and identified feed production as the principal emissions source, contributing over 70% of the carbon footprint (1.56 kg CO₂e per kg of eggs). While no comparison with conventional systems was provided, the study emphasised mitigation opportunities such as improved manure management, anaerobic digestion, and alternative protein sources (e.g. insect-based feeds). These approaches align with broader concepts of circular economy and “eco-functional intensification,” aiming to reduce emissions through resource efficiency.

Innovative feeding strategies are further explored by Tsutsumi et al. (2025), who demonstrated substantial mitigation potential in beef systems through the use of food by-products and waste streams as feed. In their Japanese case study, this approach resulted in a reported 174% reduction in climate change impacts compared to conventional beef production. While this figure suggests a net environmental benefit, it likely reflects system expansion or avoided burden accounting, and therefore should be interpreted cautiously in terms of comparability.

In contrast to studies lacking direct comparisons, several analyses provide clearer insights into organic versus conventional dairy systems. Flaten et al. (2019), in a Norwegian farm comparison, found that organic dairy systems exhibited lower nitrogen surpluses and reduced GHG emissions per unit of output, despite lower milk yields (6,106 kg vs. 8,258 kg energy-corrected milk per cow). The reduced reliance on concentrate feeds and lower replacement rates in organic systems were key factors contributing to improved emission efficiency.

Supporting this, Lambotte et al. (2023) conducted a large-scale French study and reported that organic milk production had a carbon footprint 19% lower than conventional systems when excluding indirect land-use change (iLUC), and 11% lower when iLUC was included. The inclusion of land-use change is

critical, as lower productivity in organic systems may drive agricultural expansion elsewhere, partially offsetting on-farm gains. However, the study also highlights the importance of direct land-use changes (dLUC), such as increased grassland, hedgerows, and reduced nitrogen inputs, which can enhance carbon sequestration and mitigate emissions within organic systems.

Modelling work by Mosnier et al. (2017) reinforces the role of system design, showing that organic dairy and beef systems with low concentrate use can significantly reduce emissions per unit of product. These scenarios typically involve lower yields, reduced herd sizes, and shifts to less intensive breeds, illustrating that emission reductions are closely linked to reduced input intensity rather than the organic label per se.

However, not all evidence suggests clear advantages for organic systems. An Irish study on grass-based beef production found that while organic farming had the lowest emissions per unit of land, it exhibited higher emissions per unit of product compared to conventional systems (O'Brien et al. 2023). Alternative strategies such as grass-white clover swards improved productivity and reduced emissions intensity modestly (9% for milk, 3% for beef), while agroforestry systems offered additional carbon sequestration benefits, albeit with some reduction in output. These findings highlight the importance of considering both land-based and product-based metrics when evaluating sustainability.

For pig production, the evidence base is more limited. Papatsiros et al. (2026) note that organic pig systems, which typically involve outdoor and free-range management, may have higher emissions per unit of product due to slower growth rates, lower stocking densities, and increased land and feed requirements. This suggests that, in contrast to ruminant systems where feed composition plays a major role, structural inefficiencies in organic pig production may lead to higher overall emissions intensity.

Finally, agroforestry-based livestock systems demonstrate significant potential for carbon mitigation. Reyes-Palomo et al. (2022) reported that Dehesa systems in Spain sequestered approximately 3.3 t CO₂e per hectare annually through tree biomass. This sequestration offset up to 95% of emissions in organic systems and 54% in conventional systems, with some low-intensity systems achieving net negative carbon footprints. These findings underscore the importance of integrating land-use and ecosystem services into carbon accounting frameworks.

Overall, the literature indicates that organic livestock systems can offer lower GHG emissions in certain contexts, particularly in dairy production where reduced inputs and improved nutrient cycling are key advantages. However, lower productivity, increased land use, and system-specific factors can offset these benefits, especially when emissions are assessed per unit of product. Mitigation strategies—such as improved feed efficiency, circular resource use, and agroforestry integration—appear to be more decisive than the organic versus conventional distinction alone.

4.4 Climate adaptation in organic farming systems

The focus for the search on climate adaptation was on papers about soil health. The initial search on soil structure in organic arable systems in the Web of Science identified 124; 10 studies were selected as most relevant, including some that had been reviewed previously in the Defra Evidence Review.

The evidence for organic farming improving adaptation to climate change and building resilience into farms is stronger than the evidence for climate mitigation. There is solid evidence that using organic farming practices will build soil organic matter, which is a cornerstone of good soil health. Healthy soils have good structure and porosity, with higher water holding capacity, better water infiltration rates and higher aggregate stability (Tisdall and Oades, 1982), all of which are important for resilience to climate extremes including drought and heavy rainfall.

The Defra Evidence Review (Cooper et al. 2025) found a high probability that organic farming will improve soil structure in horticultural and arable systems, which reflects the likelihood that soils in these more intensively managed systems are degraded under conventional management with more potential for improvement. This is in contrast to grassland systems, which already have a reasonably good soil health status under conventional management and may not have potential for so much improvement through organic practices.

A detailed review of data from 30 long-term experiments in Europe and China comparing organic and conventional management reported that organic agriculture generally increased aggregate stability, a key measure of good soil structure (Bai et al. 2018). Another review of literature published up to July 2023 on effects of organic farming on soil physical properties reported that organic farming increased wet aggregate stability, saturated hydraulic conductivity, and plant available water in 55% of studies, as well as mesoporosity (5–500 µm) and cumulative water infiltration (Blanco-Canqui et al 2024).

Morvan et al. (2018) evaluated the effects of organic and conventional farming on soil aggregate stability and runoff in two agricultural fields with silty soils in France; these soil types are prone to crusting during periods of intense rainfall. It is interesting to note that the two soils did not differ in bulk density, soil water retention or saturated hydraulic conductivity, but **aggregate stability** was higher in the **organically managed field**; rainfall simulations confirmed a higher amount of runoff in the conventional fields compared to organic as well as higher soil loss. This confirmed that organic management reduced the risk of soil crusting, runoff and erosion on silty soils.

Oliveira et al (2024) also reported **higher water holding capacity in organically managed soils** under a reduced tillage system compared to conventionally plough-based systems. A long-term trial in Nebraska compared an intensive conventional rotation with a diversified conventional rotation as well as an organic rotation with green manures and an intensive organic rotation with animal manures. The organic systems had **higher infiltration** than the two conventional systems, although for some soil structural parameters (e.g. top soil water stable aggregates) the diversified conventional rotation performed as well as the organic systems, highlighting the importance of crop rotational diversity in building soil health (Williams et al 2017).

Organic farms rely on tillage to control weeds and incorporate organic materials, in contrast to conventional farms which are increasingly reducing tillage to promote soil health and preserve soil structure. The reliance of organic systems on **regular tillage**, which can damage soil structure, can be seen as an “**Achilles heel**” of organic farming. Organic researchers have been exploring options for reducing tillage intensity in organic systems. Cooper et al. (2016) conducted a meta-analysis of different studies on reducing tillage intensity in organic farming and found that **shallow, non-inversion tillage maintained crop yields on a par with conventional tillage methods and also increased soil C stocks**. This

was demonstrated in the research by Niether et al. (2023) who explored the impacts of reducing tillage intensity on organic farms with and without livestock using a long-term trial in Germany. The trial demonstrated that higher and more stable yields could be achieved in a mixed (with livestock) farming system that used both deep (30 cm) and shallow (15 cm) ploughing.

5. Nature

As outlined in Section 1.1, the NWDNL is characterised by a mosaic of land uses and habitats that supports a wide range of biodiversity, including globally important populations of Early Gentian (*Gentianella anglica*), Duke of Burgundy (*Hamearis lucina*) and Desmoulin's whorl snail (*Vertigo moulinsiana*) to name a few. Many of these unique habitats are a result of the geology underlying much of the North Wessex Downs, creating chalk grasslands and chalk streams/rivers which are characteristic of the Open Downland, Downland Plain and Scarp, and River valleys and vales landscape types.

These ecosystems are, however, under threat. This is primarily from changes in land use and management, most notably agriculture which covers 84% of the NWDNL (North Wessex Downs National Landscape, 2025). The following section will present results from a Rapid Evidence Assessment, identifying the threats to biodiversity in chalk grasslands and chalk rivers followed by literature on the role organic farming may have in mitigating these threats.

For the Nature theme a total of 474 papers were identified across the various sub-themes. After reviewing and refining this was reduced to 21 relevant papers. This was supplemented by 5 additional review papers identified through grey literature and other search engines.

5.1 Identifying biodiversity threats in the landscape

5.1.1 Chalk grassland

A key direct threat for biodiversity and linked to climate change is drought. Greenwell et al. (2021) explored the impacts of drought on butterfly phenology within chalk grasslands. Larval survival rates of the Meadow Brown Butterfly (*Maniola jurtina*) significantly decreased when host plants were subjected to drought conditions, reflecting the interlinked nature of ecosystems. Mitigating drought severity through soil water retention and regulation is a key approach to offering resilience in what is becoming an increasingly drought-ridden landscape.

While impacts on individual plants can have knock-on effects for specific species, chalk grasslands do offer some mitigation for generalists due to the diversity of different plant species that are present. Maintaining this diversity of plants relies on keeping potentially dominant species, such as tor-grass (*Brachypodium pinnatum* s.l.) in check (Stroh, Pescott, and Mountford, 2017). In a series of experiments on tor-grass, Redhead (2019) and Ridding et al (2024) identified that chemical solutions such as Glyphosate were not suitable for managing tor-grass as they had a significant negative impact on non-target species, while other chemicals were ineffective. Notably, these studies also tested seasonal cutting and grazing as management solution which were found to be effective at reducing tor-grass coverage while also increasing the species diversity of other grassland plants. Ensuring existing chalk grasslands are

maintained and enhanced appropriately through suitable methods i.e. grazing, is key to developing diversity in the landscape.

Simply maintaining the existing levels of chalk grassland and related biodiversity is, however, a bare minimum. The global importance of this landscape type means every hectare counts and where possible habitat expansion should be encouraged to meet EIP targets of 3,000 Ha of wildlife-rich habitats by 2030. Conversion of existing grassland and arable land to chalk grassland requires the introduction and development of a diverse community of plants. Earthworms have been identified as a key facilitator in this process, shaping the plant community through seed distribution. Clause et al (2016) identified that the plant communities in chalk grasslands are more representative of the seeds present in worm casts than those in the soil seed bank. In addition, seeds were up to 5 times more abundant and had 4 times the species richness in worm casts compared to the soil seed bank. Providing opportunities to maximise earthworm abundance in soils will be crucial to helping chalk grasslands not only survive but flourish.

5.1.2 Chalk rivers

Freshwater chalk rivers are biodiversity hotspots, hosting a wide variety of species and providing numerous ecological services. The hilly arable landscape, typical of Open Downlands, feeds water into the streams and rivers through run-off which often contains soil sediment. This sediment pollution has a significant impact on the characteristics and ecology of chalk rivers, as explored by Mondon et al (2021 & 2024). Their first study identified that increased amounts of fine sediment both suspended and settled can impact all levels of the trophic chain from biofilms and diatoms up to fish. The later study then followed this up by sampling 90 sites across 11 chalk rivers, of which more than 75% had levels of fine sediment that were deemed ecologically degrading. Practices which limit the amount of runoff and soil erosion provide an opportunity to improve water quality and limit biodiversity loss in chalk rivers.

As well as sediment, run-off from agricultural land often contains chemicals from fertilisers, herbicides, pesticides, and other sources. Phosphorus run-off from agriculture has been recorded in chalk rivers with peak concentrations exceeding regulatory standards but not being captured by governing bodies (Fones et al, 2020). Heppell et al (2017) confirmed that nitrate pollution was also present in chalk rivers and correlated positively with presence of agricultural land use in the catchment. Additionally, there was little seasonal variation in nitrate concentrations, suggesting that run-off entered aquifers which then acted as long-term nitrate stores that fed chalk stream springs. The correlation between agricultural land use and nitrate pollution in chalk rivers was also identified by Yates et al (2023), with a key finding that chalk-based soils had higher concentrations of nitrates than peat or clay.

A common consequence of nutrient pollution in rivers is eutrophication, a process which can disrupt the ecological food chain. Chalk rivers are often prized for their abundant invertebrate diversity, however, many species show different tolerances to high and low nutrient concentrations (Pacioglu et al., 2016). A significant change in nutrients in chalk rivers can, therefore, result in significant changes in biodiversity.

Beyond nutrients, conventional farming also provides sources for chemical pollution from pesticides, herbicides, and insecticides. When testing samples from chalk rickers, Robinson et al (2023) identified 81 different chemicals from plant protection products including 25 fungicides, 26 herbicides, and 19 insecticides. The impact of these chemicals on invertebrates and other aquatic life is under-researched.

A key characteristic of many chalk rivers is their regulated flow, often being supplied from groundwater aquifers, however, some chalk rivers are temporal or may show flow variation with rain and drought events. The increasing frequency and severity of rainfall and drought events expected with climate change are likely to have an impact on flow and therefore biodiversity in chalk rivers. Visser et al (2019) explored this topic through hydroecological modelling of a chalk river, concluding that while the current ecosystem is resilient to seasonal changes, under future levels of variation the species diversity is likely to reduce resulting in the entire trophic system becoming more vulnerable to climate change events.

5.2 Organic as a mitigation option

From the Rapid Evidence Assessment, we have identified some key threats to biodiversity in the NWDL: drought and lack of maintenance in chalk grasslands, and sediment pollution, chemical pollution, and extreme flow variations in chalk rivers. The second part of this assessment explores literature on organic agriculture to highlight if such systems can mitigate these threats.

5.2.1 Chalk grassland

Of the 10 papers identified in the REA search for organic pastures and drought, none were relevant to the topic or context. Additional searches also found no direct comparisons between organic and conventional pasture performance under drought conditions. Searches did, however, find that grasslands with a **greater diversity of plant species show greater levels of tolerance to droughty conditions** (Lüscher et al, 2022). Higher plant diversity is a trait commonly associated with organic grasslands, particularly in comparison with conventional plots (Stein-Bachinger et al, 2021).

In the context of chalk grassland management, livestock grazing has been highlighted as a potential solution to control overly competitive species such as tor-grass (*Brachypodium pinnatum* s.l.), however, within the NWDL the number of livestock farms has been decreasing (Cattle down 14%, Sheep down 22%, North Wessex Downs National Landscape, 2025). There is, therefore, a need to bring livestock back into the landscape both in an agricultural role but also for conservation.

In their literature review, Schut et al (2021) highlight the need for agricultural systems to partake in a cyclical approach with mixed arable and livestock systems in place. They make particular reference to organic systems being a key example of this, in part due to the reliance on organic manures as fertilisers. A similar study in Denmark explored relationships between organic farms and where they get their manure from, noting that many of the farms do not produce their own manure, but instead co-operate with local livestock farms (Asai et al, 2014). This exemplifies the fact that individual farms do not necessarily have to become mixed, rather communities of farmers can become mixed and work as a whole. In a landscape dominated by conventional arable farms with chemical fertilisers there is limited space and market for livestock farms to exist. Instead, organic arable systems can create this market opportunity to bring grazing and thus grassland management back to the landscape.

In order to expand chalk grassland systems an additional barrier was identified, **earthworms**, which are key in dictating plant diversity. Organic systems in Europe and China have shown significant increases in the abundance of earthworms compared to conventional systems, providing the best opportunity for growing chalk grasslands (Bai et al, 2018).

5.2.2 Chalk Rivers

Soil erosion and sediment pollution is a significant threat to chalk rivers. Organic agricultural systems can have a mixed effect on mitigating soil erosion depending on the techniques utilised on farm. In their 2017 literature review of organic agriculture, Seufert and Ramankutty identified multiple sources that reported a reduction in soil erosion under organic standards, however, stress that there are still limited studies and further research should be completed. Following this, Vincent-Caboud et al (2019) in a similar review concluded that soil erosion mitigation is best when combined with cover cropping, particularly over winter, such as in no-till systems. Cover cropping is not required in organic systems and may even be better suited to conventional systems where herbicides can be utilised to terminate an overwinter cover crop.

In fact, the reliance of organic systems on regular inversion tillage to control weeds and incorporate organic inputs can increase risk of soil erosion when compared to regenerative no-till farming systems. Davis et al (2025) published a study comparing four different systems of farming (conventional no-till, mixed crop-livestock with organic and no-till practices/”regen”, organic mixed-crop livestock, and organic hay) at an experimental site in Palouse, Washington. They assessed SOC depletion, soil erosion and acidification as indicators of threats to soil health and function. Of the four systems, the organic mixed crop-livestock system had the highest annual (modelled) soil erosion rates which was attributed to the annual tillage used to terminate leys and control weeds. This was a negative outcome of the study which should not be discounted in areas where this a high risk of erosion, e.g. on fields with steep and/or long slopes that are bare for some periods of the year.

A similar set of conclusions are drawn from literature of organic’s role in nutrient leaching. Wilson & Lovell (2016) established that while organic can see reduction in nitrogen leaching compared to conventional agriculture, there is still a significant amount of nutrient loss from organic manure which in some cases can even be higher than conventional fertiliser use. A later review study affirmed this conclusion, linking nitrogen loss on organic farms from plant residues, green manures, and organic fertilisers to tillage and lack of plant coverage (Hansen et al, 2019). They recommend cover crops as a potential solution to address this ongoing issue.

While nutrient loss may not be reduced purely by organic techniques, there is a positive impact on water flow and cycling in organic systems. Colombi et al (2025) reviewed 28 papers on the effect of regenerative and organic agriculture on water cycling, finding that 19 of these expressed a positive impact, with the remaining 9 showing uncertainty. A greater capacity for water infiltration was found for organic soils in multiple studies, reducing run-off and delivering it to groundwater systems which provide chalk streams with stable, consistent flow conditions that make them biodiversity hotspots.

5.2.3 General effects of organic agriculture in biodiversity

As well as the organic agriculture providing specific opportunities to mitigate biodiversity threats in NWD landscapes, there is a wealth of literature describing the general positive effects that organic can have on all aspects of biodiversity. These examples were identified through specific literature searches beyond the key phrases identified in the REA.

In an overarching review of organic management effects on pollinator biodiversity, Walker et al (2024) identified a strong link between **high pollinator diversity/abundance and organic farms**. The most positively impacted groups were bees with moths and hoverflies experiencing a moderately positive impact. These impacts were most pronounced in arable systems and to a lesser extent in pasture systems. Given the large arable areas within the NWDL, **organic agriculture offers a significant opportunity to boost pollinator populations**.

Mondelaers et al (2009) explored more taxonomic categories in their review of organic farming, identifying positive effects on plants, arthropods, butterflies, and birds. These effects are present not only on individual farm-scales but can also appear across the wider landscape, with the benefits to biodiversity stacking in areas where there are large amounts of organic agriculture (Gabriel et al, 2010). Developing a scheme that allows for landscape-scale changes to organic farming is key to maximising the biodiversity benefit.

6. People

Within the Farming in Protected Landscapes (FiPL) programme, the “people” dimension focuses on creating opportunities for people to explore, enjoy and understand protected landscapes, increasing public engagement in land management, and supporting vibrant rural communities. Based on this policy context, the approach adopted in this review defines “people” through the **social impacts of organic farming**, with a strong emphasis on **engagement** between farmers and society, including other farmers, consumers and communities. This interpretation aligns with Management Plan priorities supporting sustainable farm diversification and local supply networks (FLM O3; FLM O5), encouraging awareness of the valued qualities of the NWDNL among local businesses (FLM O11), and promoting community participation, access and responsible tourism (CO06; CO08; ART O1; ART O2; ART O8).

The screening of the literature (26 references including snowballing and grey literature search papers and reports) enabled the identification of social impacts of organic farming across different dimensions. On the production side, studies explore implications for job creation, labour demand and working conditions associated with organic systems. These aspects are relevant to policies aimed at sustaining local communities and supporting viable land-based enterprises (Chapter 4; Chapter 9). Beyond production, the literature highlights the social impacts of diversification, particularly where organic farming is linked to consumer markets and diversification through direct selling, short food supply chains and, to a lesser extent, tourism, in line with objectives on local markets, community engagement and responsible tourism (FLM O5; DE12; DE18; ART O2).

The reviewed literature spans rural development studies, geography, sociology and marketing. However, direct empirical studies linking organic farming, short supply chains and social outcomes remain limited. Cei et al. (2024) show that socio-economic research on organic farming over the last 20 years has focused predominantly on consumer issues, while production and supply-chain dimensions are less studied, partly due to barriers in socio-economic data collection. Health-related impacts of organic food are excluded from this evidence review, while economic impacts are addressed separately under the “place” part.

6.1 Production side: labour and working conditions dimensions of organic farming

Agriculture is among the most labour-intensive economic sectors and continues to rely heavily on seasonal and migrant labour, often under conditions of heightened social vulnerability as shown in the Magnano et al., (2024) systematic literature review. While organic farming is frequently presented as contributing to sustainability transitions, its implications for work and labour remain less systematically documented than its environmental outcomes. Organic certification standards have historically focused on agronomic and technical elements, whilst social elements remain weakly standardised (Cooper et al., 2025). Nevertheless, organic agriculture originates from a social movement, and social justice is formally embedded in the IFOAM Principle of fairness, encompassing equity and wellbeing for farmers, workers and communities (IFOAM 2024). This section synthesises the available evidence on labour in organic farming, focusing on: workload and job creation, working conditions, satisfaction, and skills, knowledge and innovation.

6.1.1 Workload and job creation

A consistent theme across empirical studies is that **organic farming can be associated with higher labour demand**, although effects vary substantially by farm type, scale and organisational choices (Magnano et al., 2024; Orsini et al. 2018; Lobley et al. 2009a). Early comparative work by Lobley et al. (2009a) shows that organic farms in the UK employ more labour per farm and per hectare than non-organic farms, with particularly pronounced differences when measured in full-time equivalent (FTE) units per hectare. Organic arable farms and pig and poultry systems tend to require more labour than comparable conventional systems, while farms engaging in diversification are more likely to report positive employment effects. Additionally, Lobley et al (2009a) found that organic farms are more likely to employ a higher share of non-family labour, thereby contributing to employment beyond the farming household.

These findings have been nuanced by Orsini et al.'s (2018) review on labour use. The review found that labour use per hectare is higher in organic arable systems than conventional arable, but comparable or lower in organic livestock systems, particularly in England and Wales. Lower stocking rates in organic livestock farming increase labour per animal but reduce total labour per hectare, underscoring that labour outcomes depend on system design rather than organic status per se. Farm size also matters: small organic farms tend to use proportionally more labour than larger ones.

According to Orsini et al. (2018), labour efficiency findings remain inconclusive: while some studies report lower efficiency during conversion, others observe improvements after several years, suggesting learning effects and organisational adaptation. Importantly, labour considerations appear to play a limited role in farmers' initial conversion decisions, particularly where conventional farms already implement practices similar to organic standards. This is consistent with the Duval et al. (2021) review, who show that workload outcomes in agroecological livestock systems are primarily shaped by farm organisation and strategic choices, such as the adoption of direct marketing or intentional limitations on work intensity.

6.1.2 Working conditions and job satisfaction

Reviews focusing on labour aspects consistently highlight a research gap on working conditions and job quality in organic farming, particularly with regards to qualitative dimensions and marginalised groups. Magnano et al. (2024) show that social analyses of organic farming continue to prioritise quantitative indicators, while labour standards, contract security and everyday working conditions remain weakly documented due to conceptual and methodological difficulties in defining and operationalising social indicators. Existing empirical studies suggest a higher prevalence of seasonal and part-time labour in organic systems (Lobley et al., 2009a; 2009b), while evidence on contract security and wage levels remains scarce and inconclusive, with employment arrangements shaped more by market, sectoral and organisational factors than by farming systems alone (Orsini et al., 2018). Importantly, comparative reviews find no systematic differences in working conditions between organic and conventional farms once farm structure and organisation are taken into account (Orsini et al., 2018; Duval et al., 2021).

Health-related findings further illustrate the ambivalence of work impacts. Reduced exposure to synthetic agrochemicals may lower certain occupational risks (Maas et al., 2020), while increased reliance on time-intensive manual tasks can heighten physical workload, and mental health challenges remain prevalent across farming systems (David et al., 2024).

In contrast, work satisfaction is more consistently documented across a range of qualitative and mixed-methods studies. A qualitative study of diversified organic market-gardening farms in France highlights high satisfaction among farm managers despite heavy workloads, attributed to task diversity, autonomy, decision-making power and the meaning attached to organic practices (“active work”) (Dupre et al., 2017). Duval et al. (2021), in a review of working conditions in livestock-based agroecological systems, similarly identify alignment with personal convictions, autonomy and work organisation as key contributors to positive work appreciation, despite increased complexity. Schanz et al. (2022), drawing on a survey of 102 organic mixed livestock farmers across seven European countries, report high workloads alongside high satisfaction, driven by learning opportunities, autonomy and perceived recognition by consumers. It is consistent with the Boutte et al. (2020) French study based on an in-depth before-during-after analysis of organic dairy conversions. This study shows increases in overall and social satisfaction over time, particularly linked to peer and societal recognition, while also highlighting the challenges of conversion phases marked by uncertainty and learning demands. Overall, the literature suggests that although objective working conditions in organic farming are not systematically more favourable than in conventional systems, subjective dimensions of work, especially satisfaction and meaning, are more consistently observed and better supported across diverse empirical approaches.

6.1.3 Skills, knowledge and innovation

A European systemic literature exploring the nexus between social and environmental sustainability in agriculture shows that a distinctive feature of organic farming is its reliance on knowledge-intensive labour (Magnano et al. 2024). Reduced dependence on synthetic inputs increases reliance on human

skills, preventive management and continuous observation. This is reflected in the importance of informal knowledge exchange and social networks, which play a critical role in problem-solving and in supporting new entrants, especially in contexts of limited intergenerational knowledge transmission.

Duval et al. (2021) draw on the notion of “experienced complexity” to describe how organic work can be perceived as cognitively demanding without necessarily being experienced as negative. Complexity may enhance professional identity and competence, but it can also constitute a barrier where access to training or advisory services is limited.

Innovation processes in organic farming are strongly embedded in local social and institutional contexts. Arnaud and Triboulet (2022), analysing the region of Gers in France, drawing on smart specialisation theory, show that innovation often emerges through farmer-led experimentation (“auto-discovery”), supported by local governance structures. The case study highlights that organic transitions can generate knowledge spillovers across territories, although such effects depend on network density and coordination.

6.2 Consumption side: engaging with the wider community

6.2.1 Market and consumers’ perception of organic produces

Recent evidence confirms that demand for organic food in the UK is well established and growing (Soil Association 2026). Dumper-Pollard et al. (2024) report that 67 % of UK consumers intentionally purchase organic products, with engagement observed across income groups. Organic shoppers also display higher levels of active engagement: over 50 % purchase from independent retailers, around 40 % use farm shops, farmers’ markets or street markets, and they are twice as likely as non-organic consumers to actively seek information about food and production practices. This suggests that organic consumption is associated not only with purchasing behaviour but with more engaged food interest.

These patterns are consistent with wider evidence indicating generally positive perceptions of organic food, driven by values rather than price alone. Meta-analytical and systematic reviews show that organic purchasing and willingness to pay are primarily associated with perceived health benefits, environmental concerns, production standards and availability, rather than socio-demographic factors (Massey et al., 2018; Katt & Meixner, 2020). Comparative perception studies further nuance these findings. Nitzko et al. (2024) show that while organic food is consistently perceived as healthier, more natural and more environmentally friendly than conventional alternatives, these perceptions are not always distinct from those associated with “pesticide-free” production.

Overall, while organic consumers appear more values-driven and engaged, their perceptions do not necessarily reflect detailed knowledge of organic farming practices, and there is limited research examining how these perceptions are formed, validated or translated into sustained social engagement.

6.2.2 Diversification as a lever for positive social outcomes for organic farming

Diversification represents a key organisational pathway through which organic farming can contribute to social outcomes beyond the farm. The literature suggests that organic farms are more likely to diversify than conventional farms. Although diversification is not exclusive to organic systems and its likelihood remains shaped by farm structure, location, market access and policy frameworks (Bonfiglio et al., 2022).

Bonfiglio et al. (2022), drawing on the distinction between deepening, broadening and re-grounding diversification, show that organic farms are particularly associated with deepening forms of diversification, notably on-farm processing and direct selling. These channels still account for a limited share of total sales value (Lobley et al., 2013), as further developed in section 7.5.

Comparative evidence from Italy, Denmark and Switzerland supports this pattern, indicating higher propensities among organic farms to engage in direct marketing, especially among younger and more highly educated farmers (Polling et al., 2017; Heiniger and Hochuli, 2019). Additionally, beyond direct-selling, Darnhofer (2005) found that organic farmers are more likely to combine production with activities such as, agri-tourism and energy generation, and are disproportionately represented in emerging sectors such as biogas. Mastronardi et al. (2015), based on a survey of 226 farms involved in short food supply chains in Italy, report that around 40% of land in these systems is managed organically (compared to 9% nationally).

Direct selling constitutes a pivotal mechanism for social engagement. Studies consistently emphasise the qualitative social impacts of direct selling rather than its quantitative market share. Farmers engaged in direct sales value personal interaction, dialogue and feedback from consumers, which can influence production decisions and foster mutual understanding and trust (Lobley et al., 2013). These findings are consistent with the literature on short food supply chains (SFSCs) and alternative food networks. SFSCs are characterised by reduced geographical, cognitive and organisational distance between producers and consumers, and research has identified associated social benefits such as trust-building, community cohesion and improved understanding of farming and environmental practices (Gori & Castellini, 2023; Kneafsey et al., 2013). Organic farming can play a synergistic role within these systems by providing a shared value framework that facilitates cooperation, collective governance and consumer engagement (Gori & Castellini, 2023). Mechanisms such as Participatory Guarantee Systems illustrate how organic principles can underpin trust-based certification, peer-to-peer learning and closer producer–consumer relations, particularly for small-scale agroecological farms (Dubois, 2019, Gori & Castellini, 2023).

Overall, the literature suggests that organic farming is more likely to generate social engagement outcomes when combined with diversification strategies, particularly direct selling and participation in SFSCs. These outcomes are most evident where diversification is embedded within collective, territorially coordinated initiatives that align production, marketing and shared social objectives, rather than through isolated farm-level actions. This is particularly relevant when considering the potential for organic to deliver these benefits in national landscapes like the NWDNL.

7. Place

The Farming in Protected Landscapes (FiPL) programme includes place-based objectives focused on enhancing landscape quality, conserving historic features, and supporting resilient, nature-friendly farm businesses. Historic features are a defining part of the NWDNL. Evidence of over 5,000 years of human activity remains visible, from prehistoric monuments such as Avebury and Silbury Hill to extensive barrow landscapes, historic field systems, water meadows and traditional farmsteads. These features are

not isolated assets but are embedded within the wider farmed landscape, shaping patterns of land use and contributing to a strong sense of place (North Wessex Downs National Landscape, 2025).

The local economy is closely tied to these landscape qualities. Agriculture remains the dominant land use, alongside a network of rural businesses linked to land management, food production, tourism and other land-based activities. Many of these depend on the quality and character of the landscape itself, both as a productive resource and as a basis for attracting visitors and supporting local employment (North Wessex Downs National Landscape, 2025).

These characteristics point to a landscape where environmental quality, cultural heritage and economic activity are closely linked, and where changes in land management have implications beyond the farm level. Organic agriculture is often associated with farming systems that work with, rather than against, these underlying patterns through more diverse rotations, integration of livestock, and stronger connections to local supply chains. The following section develops a rationale for searching for evidence according to the nuances of FiPL’s “Place” objectives and examines relevant themes in the evidence identified. The overall purpose of this section is to evaluate how organic land management may influence landscape structure and features, and the extent to which it can support more resilient, locally embedded rural economies.

For the “place” theme, search terms relating to landscape quality were explored based on established methods for landscape quality assessment found in Zanten et al. (2014). A total of 1,098 papers were identified across the sub-themes developed for this set of FiPL priorities. Following screening and refinement by reviewing paper abstracts, this was reduced to 27 with the majority relating to landscape structure and linear features (16), and increasing the resilience of sustainable businesses (7), followed by the presence of livestock (2), and cultural and historical structures (2). Because of the age of some of the sources identified, a further 8 sources were incorporated into the analysis using forward snowballing to ensure findings were supported with more recent studies. A further 3 grey literature sources were identified where information was significantly lacking.

7.1 Developing criteria for assessing “place”

The Farming in Protected Landscapes (FiPL) programme defines “place” through a set of outcomes relating to landscape quality, cultural heritage and resilient rural economies. These objectives provide a clear and comprehensive framework for understanding place within a policy context. This section builds on that framework by drawing on landscape preference and landscape planning literature to further interpret these objectives and identify a set of criteria and associated themes that can be used to structure a review of the academic literature.

Evidence from landscape preference studies highlights the importance of structural diversity and cultural cues in shaping how agricultural landscapes are perceived. A meta-analysis of 345 European case studies found that landscapes characterised by a mosaic of land uses — combining fields, hedgerows, trees and pasture — are consistently preferred over more homogeneous systems. Features such as grazing livestock, historic farm buildings and well-managed semi-natural elements (e.g. hedgerows, field margins

and water features) are associated with positive perceptions, signalling both active land management and cultural continuity. In contrast, large-scale monocultures and simplified landscapes are generally viewed negatively, particularly where they lack structural variation or visible signs of stewardship (van Zanten et al., 2014).

These findings align with landscape planning approaches that define landscape quality through three interrelated criteria: diversity, continuity and coherence (Kuiper, 1997). Diversity refers to the variety of land uses, habitats and landscape elements present within a landscape, often reflecting underlying physical conditions. Continuity captures the persistence of ecological processes and historical patterns over time, contributing to a sense of identity and recognisability. Coherence relates to the spatial organisation and connectivity of landscape elements, influencing both ecological function and the legibility of the landscape.

These criteria provide a practical way of interpreting FiPL's place-based objectives. Enhancing landscape quality can be understood in terms of diversity and coherence, through the presence and arrangement of different land uses and features. Conserving cultural heritage aligns with continuity, reflecting the persistence of historic patterns, features and land management practices. Supporting resilient rural economies is linked to the extent to which these landscape characteristics are maintained through viable and adaptive farming systems.

The following sections apply this framework to examine how organic agriculture may contribute to place. Four interrelated dimensions are considered: landscape structure and linear features, the presence of livestock, cultural and historic landscapes, and farm businesses and the rural economy. Together, these provide a basis for assessing how farming systems shape both the physical character of landscapes and their wider social and economic functions in line with FiPL "place" priorities.

7.2 Landscape structure and linear features

Evidence suggests that organic farming is often associated with more diverse landscape structures, although the extent to which it drives these patterns remains unclear. Levin (2007), combining national agricultural data with spatial analysis of 112 farms in Denmark, found that organic farming is associated with higher land-use diversity, a greater number of land uses per hectare and smaller field sizes at the national scale. Conversion to organic farming is also linked to increases in diversity and reductions in field size. Similarly, Norton et al. (2009), using a large paired design of 89 organic and non-organic fields across 161 farms in England, show that organic farms are more likely to be located within inherently more heterogeneous landscapes, but also exhibit greater field and farm complexity within those landscapes. Organic farms in the study had smaller fields, higher densities of linear features, more diverse crop rotations, and a greater proportion of non-crop habitats, including grassland and semi-natural elements. These findings provide strong evidence not only that organic farming is frequently associated with more structurally complex agricultural landscapes, but also that organic management can work well with increased system complexity at the field and farm scale.

However, this relationship is not consistently observed when analyses are restricted to smaller study areas. Levin (2007) shows that within sampled farm areas, differences between organic and conventional farms are limited and largely explained by factors such as geography, farm characteristics and the spatial distribution of organic land. This suggests that the association between organic farming and landscape diversity may reflect where organic farming is adopted, rather than a direct effect of organic management itself. Findings from other studies support this interpretation. Westergaard (2006), in a controlled comparison of 40 Danish farms, found no significant differences in landscape composition or field structure between organic and conventional systems once farm type and regional context were accounted for. Similarly, Dytrtová et al. (2016), analysing landscape change in the Czech Republic between 1985 and 2006, show that increases in heterogeneity were driven by wider land-use transitions rather than organic farming, with landscape patterns shaped by historical and socio-economic processes.

There is also limited evidence that organic farming directly increases the extent of linear features such as hedgerows and field boundaries. Aude et al. (2004), in a comparison of 56 hedgerows in Denmark established in the same way and of similar age, found no difference in hedgerow structure or extent between organic and conventional farms, although organic **hedgerows supported richer and more semi-natural plant communities**. Gibson et al. (2007), using whole-farm mapping and vegetation surveys across 10 organic and 10 conventional farms in south-west England, similarly found no difference in hedgerow area. This is consistent with the broader pattern that landscape heterogeneity and the presence of linear features are shaped primarily by environmental conditions, farm structure, land-use history and wider socio-economic processes, rather than by organic management alone.

Some evidence suggests that organic farming is associated with a greater presence of semi-natural and less intensively managed habitats at the farm scale. Gibson et al. (2007) find that organic farms contain a **greater total area of semi-natural habitats**, particularly woodland and field margins, even where the extent of specific features such as hedgerows does not differ. Similarly, Norton et al. (2009) report that organic farms support a greater extent and proportion of non-crop habitats overall, including grassland and boundary features.

At the same time, there is stronger evidence that **organic farming can improve the condition and ecological quality of existing landscape features**. Norton et al. (2009) report that hedgerows around target organic fields are wider, taller and less gappy, while Bates and Harris (2009), based on a matched-pairs study of 15 organic and 15 conventional farms in England and Wales, show that hedgerows on organic farms are taller and have greater cross-sectional area, reflecting less frequent and more staggered cutting regimes. The strongest and most consistent evidence, however, relates to vegetation quality. Aude et al. (2004), based on a survey of 56 hedgerows in Denmark, find significantly higher plant species richness and a species composition more similar to semi-natural communities under organic management. Supporting this, Petersen et al. (2006), analysing 60 field boundaries in a Danish dairy landscape, report higher plant diversity under organic farming, with a shift away from ruderal and nutrient-demanding species towards more stress-tolerant vegetation. Similar results are found by Boutin et al. (2008) across 30 farms in Canada, where hedgerows on organic farms support more diverse and conservation-relevant plant communities. Long-term evidence from Damgaard et al. (2014), analysing 57

hedgerows with up to 33 years since conversion, shows that species richness in hedgerow ground vegetation increases over time following conversion to organic farming.

More recent evidence suggests that the ecological contribution of these features depends on the farming systems within which they are embedded. Boinot et al. (2024), in a study of 40 paired organic and conventional cereal fields across a hedgerow gradient in Brittany, show that hedgerow length alone has limited effects on ecological and economic indicators. However, the benefits of hedgerow-rich landscapes are strongest in organic systems, where reduced agrochemical disturbance appears to allow greater spillover and persistence of beneficial organisms within crop fields. This is consistent with findings from Piha et al. (2007), Aavik and Liira (2010) and Couthouis et al. (2023), which suggest that landscape structure remains the main determinant of ecological outcomes, but **that organic farming can enhance the biodiversity value and functioning of landscape features** within those existing structures.

Overall, the evidence suggests that organic farming is not a primary driver of greater landscape heterogeneity or of more extensive linear features. However, it is frequently associated with more diverse landscapes, appears well suited to farming within them, and can **improve the condition, ecological quality and functioning of existing features such as hedgerows and field boundaries**. Organic farming therefore seems less important as a mechanism for creating heterogeneous landscapes than as a way of managing agricultural land that can work with, reinforce and improve the quality of more diverse landscape structures.

7.3 Presence of livestock

The presence of grazing livestock is a key component of landscape quality, strongly associated with positive public perceptions as a marker of active management and cultural continuity (van Zanten et al., 2014). Evidence suggests that organic farming is structurally well aligned with this preference. While UK-specific academic studies are limited, international evidence indicates that organic systems are typically mixed and livestock-integrated, particularly in grassland-dominated landscapes (Stotten and Froning, 2023; Klaus et al., 2024). This pattern is reflected in UK data: 62% of organic land is permanent pasture, compared to 56% across agriculture as a whole, indicating a stronger association with grazing systems (Defra, 2024; Defra, 2025). Farm structure data further shows that the majority of organic farms in England are grazing livestock or dairy systems (Defra, 2025). Taken together, this suggests that organic farming does not necessarily increase livestock numbers, but is more likely to support farming systems in which livestock are present and visible within the landscape, reinforcing the characteristics that are widely associated with higher landscape quality.

7.4 Culture and historic landscapes

Evidence directly linking organic farming to the maintenance of cultural and historic landscape features is limited, but both academic and grey literature point to a consistent relationship. Turinek et al. (2009), drawing on experimental and case study evidence, identify “cultural landscape design” as a core objective of biodynamic systems, emphasising the integration of crops, livestock and semi-natural elements within locally adapted farm systems. Similarly, Darnhofer et al. (2010), based on case studies across Europe, highlight that organic farming has been supported for its contribution to cultural landscapes, although

delivery is variable and dependent on management practices. Supporting this, sector-level evidence indicates that organic systems are associated with smaller field sizes, increased field boundaries (including hedgerows), and more complex landscape mosaics, which correspond to features identified as characteristic of historically derived agricultural landscapes (IFOAM, 2023). However, these features are not unique to organic farming, and there remains little direct empirical evidence that organic systems consistently maintain or enhance cultural or historic landscape features relative to other low-intensity farming systems.

7.5 Farm businesses and the rural economy

This section examines the extent to which organic farming contributes to rural and regional economic development. The evidence reviewed focuses on studies that assess organic farming in relation to local economies, including its role within local food systems, and wider territorial economic development. This reflects the expectation that organic farming may contribute to resilient rural economies not only through production, but through its links to local markets, employment and economic activity at different spatial scales. Evidence of organic system social impacts on employment and direct marketing channels is discussed in part 6.

Evidence on the economic role of organic farming suggests that it can contribute to enhancing local economies, but that outcomes depend on how it is embedded within wider market structures, supply chains and regional conditions. For example, analysis of the UK organic sector by Smith and Marsden (2004) showed rapid expansion in the late 1990s, with organic land increasing from around 49,600 ha in 1996 to 425,000 ha by 2000, and retail sales rising from £200 million to £727 million. However, this growth was not matched by improved farm-level returns. Retail value per hectare declined from around £1,210/ha to £471/ha, and oversupply in sectors such as dairy meant that 50–60% of organic milk was sold into conventional markets. This indicates that organic farming, when operating within conventional supply chains, can face similar structural constraints and does not automatically generate improved local economic outcomes.

Lobley et al. (2009b), based on a survey of 655 farms in England (302 organic), also find little difference between organic and conventional farms in terms of local purchasing, market orientation or income retention. Lobley et al. (2013), using a survey of 475 organic farms, report that while 34.8% of farms describe themselves as locally oriented. However, these account for only 13.7% of total sales by value, with most sales taking place through cooperatives and processor contracts.

Findings from supply chain studies are similar. Ilbery and Maye (2011), combining national data with 22 farm interviews, find that around 37% of organic produce is sold through local markets, with a similar share sold beyond a one-hour travel zone. Ilbery et al. (2013), based on 43 farm case studies, show that most farms operate across a mix of local and national markets. In some regions, such as south-east England, a higher proportion of output is sold locally (around 53% within 30 minutes of the farm), while in others there is greater reliance on national supply chains.

Overall, the evidence indicates that organic farming is not inherently local, and in many cases operates through similar market structures to the wider agri-food sector. Although generally a greater

proportion of organic food is sold through local and independent retail channels than found in non-organic supply chains.

Studies looking at value capture of organic farming by producers also show a mixed picture. Yacamán Ochoa et al. (2020), based on surveys of 57 peri-urban organic producers and 63 retailers in Andalucía, find that organic farms engaged in short supply chains can retain a greater share of value through direct sales and reduced intermediaries. However, the study also identifies significant constraints, including fragmented production, high distribution costs (reported by 49.2% of producers), and limited infrastructure and coordination. This shows that economic benefits at this scale depend on organisation, logistics and market demand, rather than organic production alone.

Generally, the presence of a developed organic sector within a region is implicit of a more economically active local economy and this notion is supported by large scale studies in the US and in Europe. Marasteanu and Jaenicke (2015), using data for 2,726 counties in the United States, identify clusters of organic activity associated with infrastructure, institutional support and higher farm incomes. Their later analysis finds that counties within organic hotspots have poverty rates up to 1.6 percentage points lower and median household incomes over \$1,600 higher than comparable counties. While causality cannot be fully established, this indicates that organic farming is associated with economically active rural regions, particularly where it develops in clusters.

Public funding is a key driver in development of organic production systems. Ferasso et al. (2021), using regional data from Spain (2007–2019), find that areas receiving higher levels of public funding account for a large share of growth in organic production and employment. Kujala et al. (2022), based on a survey of 840 organic farmers in Finland, identify subsidies as a key factor shaping regional uptake.

Finally, there is evidence that the way organic farming is organised influences outcomes. Lamine et al. (2023) show that organic farming contributes more directly to regional development where it is embedded in coordinated policy frameworks, such as Italian biodistricts. Pomponi et al. (2026), using a counterfactual comparison of municipalities, also finds stronger socio-economic performance in areas within biodistricts. In these cases, organic farming contributes through coordination between producers, businesses and public institutions. This supports the adoption of this approach for expansion of organic farming within the national landscapes in the UK.

Overall, the evidence indicates that organic farming can contribute to rural economic development through employment, diversification and participation in a range of markets. However, these effects are not inherent to organic production itself. They depend on how organic farming is integrated within supply chains, supported by policy, and embedded within local and regional economic systems.

8. Barriers to conversion and scaling

Organic farming has the potential to contribute to environmental and economic outcomes, but its expansion is often constrained by a range of interrelated barriers. These include financial risks, knowledge and skills gaps, market limitations and institutional factors. Many of these barriers reflect the broader systems within which organic farming operates, including supply chains, advisory services and policy frameworks.

Understanding these constraints requires consideration of the policy instruments currently used to support the sector. These provide a useful framework for identifying both where barriers arise and where targeted interventions may be most effective.

Stolze and Lampkin (2009) identify three broad categories of policy instruments—legal, financial and communicative—applied across both supply and demand sides of the organic sector. Table 1 presents an adapted version of this framework and highlights the position of a proposed organic conversion support programme within the wider policy landscape.

Table 1 Organic farming policy instruments and the role of a conversion support programme (adapted from Stolze and Lampkin, 2009)

Policy instrument	Supply side measures	Demand side measures
Legal instruments (regulation)	EU organic regulations (e.g. production standards, certification requirements). <i>Adopted in the UK</i>	Labelling and certification frameworks supporting consumer trust
Financial instruments	Area payments for conversion and maintenance Inspection cost support Investment grants Animal welfare payments	Support for marketing initiatives Public procurement Investment in processing and distribution Market development activities
Communicative instruments	Advice and technical assistance Vocational training and education Research and demonstration projects Capacity building and institutional support <i>Proposed FiPL conversion programme (mentoring, peer learning, technical support)</i>	Information and promotion campaigns Public education Branding and labelling (e.g. EU organic logo) Market information and statistics

The proposed FiPL Organic Farming Conversion Programme sits primarily within the category of communicative policy instruments, particularly in relation to advisory support, training and capacity building. Its core components—peer-to-peer learning, one-to-one mentoring and practical guidance through the certification process—directly address commonly identified barriers related to knowledge, skills and system complexity.

This is significant because financial and regulatory measures alone are often insufficient to support conversion. Even where funding is available, farmers may lack the technical knowledge, confidence or support networks needed to implement system change. Strengthening advisory provision and peer learning therefore plays a key role in enabling uptake.

At present, support for organic farming in the UK is delivered through a combination of regulatory requirements, financial schemes and more limited advisory provision. However, these elements are not always well integrated. A programme focused on conversion support has the potential to strengthen this gap by linking existing funding and certification systems with practical, farm-level guidance and peer networks.

As such, the proposed programme can be understood as an enabling mechanism within the wider policy landscape, helping to translate existing support into effective uptake.

Despite the availability of financial support and regulatory frameworks, evidence shows that conversion to organic farming remains constrained by practical barriers that are not fully addressed by existing policy instruments. Farm-level studies indicate that financial risk, system complexity and administrative burden are central concerns. For example, Łuczka et al. (2024), based on a survey of 164 conventional farmers, report that 95% have no intention of converting, with decisions driven primarily by profitability, yields and production risk, alongside high labour requirements and regulatory complexity. This suggests that financial incentives alone are insufficient where farmers lack the confidence, knowledge or support needed to manage system change.

Evidence from behavioural studies reinforces this point. Läpple and Kelley (2013) show that conversion decisions are shaped not only by economic factors but also by technical feasibility and social norms, with farmer attitudes and perceived capability playing a key role. This highlights the importance of advisory support and peer learning in enabling uptake, particularly where organic systems are perceived as complex or unfamiliar.

A large-scale analysis of agricultural census data provides further insight into how these barriers can be overcome. Marasteanu and Jaenicke (2015), using county-level data across 2,726 US counties, show that areas with a higher share of organic operations certified by organisations providing outreach and advisory services are significantly more likely to form organic “hotspots”. The presence of outreach-oriented certifiers increases the probability of hotspot formation by approximately 9–13%, indicating that knowledge exchange, communication and support networks are key enabling factors.

This evidence points to a clear gap within the current policy landscape. While financial and regulatory instruments are in place, there is more limited provision of coordinated advisory support to help

farmers navigate the conversion process. The proposed conversion programme directly addresses this gap by combining technical guidance, peer-to-peer learning and ongoing support. In doing so, it targets the factors shown to influence both the uptake and the wider economic contribution of organic farming, particularly the role of knowledge networks and institutional support in enabling system change.

9. Opportunities for research

Throughout this review some gaps in knowledge were identified that provide opportunities for future research with a focus on evidence relevant to the North Wessex Downs National Landscape. For some topic areas there was a lack of UK-relevant evidence and particularly evidence for chalk landscapes. In many cases, the findings were acknowledged to be context-dependent. It is therefore very important that evidence for impacts of organic farming in chalk landscapes like the NWDNL is compiled. The recent extension of the Farming in Protected Landscapes programme provides an opportunity for monitoring and evidence gathering activities to be supported to address these evidence gaps. Areas where evidence was lacking included:

Climate (Section 4)

- The need to refine studies on climate impacts to include both area-based and product-based assessments (*Section 4.2 Other effects of organic farming on GHG emissions*)
- There is strong evidence globally for organic management supporting climate adaptation through improvements in soil health and hydrology, but a lack of UK-specific evidence, especially for chalk landscapes (*Section 4.4 Climate adaptation in organic farming systems*)
- Trade-offs between more tillage-intensive systems like organic farming and soil erosion risk on thin/chalky soils versus min-till/no-till systems (*Sections 4.4 Climate adaptation in organic farming systems; 5.2.2 Chalk rivers*)

Nature (Section 5)

- Performance of organic grassland systems under drought conditions in chalk landscapes (*Section 5.2.1 Chalk grassland*)
- A general lack of evidence or mixed evidence on impacts of organic farming on water quality (nutrient losses, erosion effects) (*Section 5.2.2 Chalk rivers*)
- Soil biota in chalk soils, particularly earthworms, and their role in habitat restoration under organic systems (*Sections 5.1.1 Chalk grassland; 5.2.1 Chalk grassland*)
- The impact of re-introducing livestock to chalk grasslands to improve species diversity, and specifically how organic management might facilitate this (*Section 5.2.1 Chalk grassland*)
- Landscape-scale impacts of organic farming in UK protected landscapes, particularly on biodiversity (*Section 5.2.3 General effects of organic agriculture in biodiversity; also linked to Section 7.2 Landscape structure and linear features*)

People (Section 6)

- Social and labour conditions – there is a lack of UK-specific evidence on labour conditions, job satisfaction and social outcomes of organic farming (*Section 6.1 Production side: labour and working conditions*)
- Inclusion and integration of marginalised communities (e.g. BPOC, migrant workers, women) – there is virtually no evidence on how organic and conventional systems affect these outcomes (*Section 6 overall; particularly implicit across Section 6.1 and 6.2, where gaps are noted*)

Place (Section 7)

- The evidence for organic farming and local economic impacts is not strong; further evidence is needed on impacts of organic farming on local economic resilience (*Section 7.5 Farm businesses and the rural economy*)

11. Concluding remarks

Overall, this Rapid Evidence Assessment demonstrates that organic farming can contribute to the delivery of the North Wessex Downs National Landscape priorities, particularly in relation to nature and aspects of climate adaptation. The evidence base is strongest for biodiversity outcomes, with consistent findings that organic systems support higher levels of pollinators, plants, and soil organisms, alongside reduced pesticide pressures. There is also robust evidence that organic management can improve soil health, including soil structure, organic matter content and water regulation, which are key to enhancing resilience to drought and heavy rainfall. These benefits align closely with the Landscape's objectives for recovering natural capital, protecting communities from flooding, fighting climate change, enabling sustainable food production and creating green jobs. Evidence for climate mitigation is more nuanced, with some studies indicating lower greenhouse gas emissions per unit area, but less consistent results when assessed per unit of production. Similarly, while organic systems can contribute to improved water cycling and reduced chemical pollution, evidence on nutrient losses and sediment control is mixed.

Across several themes, the evidence becomes weaker or more context-dependent. In particular, there is limited UK-specific and very little chalk landscape-specific research, meaning that many conclusions are drawn from broader European or global studies. This is especially the case for water quality outcomes, soil erosion risks associated with tillage, and the performance of organic systems under drought conditions in grassland systems. Evidence for social and economic outcomes is also less well developed. While organic farming can support higher labour demand and farmer satisfaction, there is little robust evidence on working conditions, inclusion, or wider community impacts. Likewise, the contribution of organic farming to local economic resilience is highly variable and depends more on market structures, supply chains and levels of coordination than on organic production alone.

Addressing barriers to uptake will be critical if the potential benefits of organic farming are to be realised at scale. The evidence highlights that financial incentives, while necessary, are not sufficient on their own. Farmers face a combination of practical challenges, including knowledge gaps, system complexity, perceived risks around yields and profitability, and limited access to advisory support. Targeted interventions are therefore needed to strengthen knowledge exchange, peer-to-peer learning

and technical guidance, particularly during the conversion period. Supporting more integrated, landscape-scale approaches, such as collaboration between arable and livestock systems, or coordination across catchments, may also help to unlock greater environmental benefits while reducing individual farm-level risks.

Finally, there is a clear need to address key gaps in the evidence base to support more informed decision-making. Priority areas include generating UK-relevant data on water quality and soil processes in chalk systems, understanding whole-system trade-offs between productivity and environmental outcomes, and assessing the impacts of organic farming at landscape scale. There is also a need for more robust social and economic research, particularly in relation to labour conditions, inclusion and rural development. Strengthening this evidence base will be essential to ensure that future policy and investment decisions are grounded in a clear understanding of both the opportunities and limitations of organic farming within the North Wessex Downs National Landscape.

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Appendix A – Search Terms

Sub-Theme	Search Terms	Number of Articles	Date of Search
Climate			
Soil C sequestration in arable systems	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS= (arable OR cropland* OR "cropping system*" OR "annual crop*" OR tillage OR "arable soil*") AND TS==(("soil carbon sequestration" OR "soil C sequestration" OR "carbon sequestration in soil") OR ("soil organic carbon" OR SOC OR "carbon stocks") AND (sequestration OR storage OR accumulation OR stabilization)))	106	25/03/2026
GHG emissions from arable cropping (measured)	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS= (arable OR cropland* OR "cropping system*" OR "annual crop*" OR tillage OR "arable soil*") AND ("greenhouse gas*" OR GHG OR "carbon dioxide" OR CO2 OR methane OR CH4 OR "nitrous oxide" OR N2O) AND (emission* OR flux* OR release*) AND (agricultur* OR farm* OR cropland* OR grassland* OR pasture* OR "arable land" OR agroecosystem* OR "farming system*")	149	25/03/2026
GHG emissions from arable cropping (modelled)	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS= (arable OR cropland* OR "cropping system*" OR "annual crop*" OR tillage OR "arable soil*") AND ("greenhouse gas*" OR GHG OR "carbon footprint") AND (agricultur* OR farm* OR "farming system*") AND ("life cycle assessment" OR LCA OR model* OR simulation*)	54	25/03/2026

Sub-Theme	Search Terms	Number of Articles	Date of Search
GHG emissions dairy	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS= (arable OR cropland* OR "cropping system*" OR "annual crop*" OR tillage OR "arable soil*") AND TS=("dairy" OR "milk") AND TS=("greenhouse gas*" OR GHG OR "carbon footprint") AND (agricultur* OR farm* OR "farming system*") AND ("life cycle assessment" OR LCA OR model* OR simulation*)	26	13/04/2026
GHG emissions beef	As above..TS=("beef" OR "cattle" OR "ruminant")	23	13/04/2026
GHG emissions sheep	As above..TS=("sheep")	4	13/04/2026
GHG emissions pigs	As above... TS=("pig*" OR "swine" OR "pork")	7	13/04/2026
GHG emissions poultry	As above....TS=("chicken" OR "egg*" OR "broiler" OR "poultry")	13	13/04/2026
Climate adaptation – soil health focus	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS= ("soil health" OR "soil quality" OR "soil function*" OR "soil condition*") AND ("soil structure" OR "soil aggregation")	43	08/04/2026
Biodiversity			
Chalk Grasslands	TS=(chalk grassland) AND TS=(calcareous grassland)	19	20/03/2026
Chalk Streams/Rivers	TS=(chalk streams chalk rivers)	103	20/03/2026
Organic Mixed Farms	TS=(organic agriculture) AND TS=(crop-livestock mixed systems) AND TS=(UK)	100	20/03/2026
Organic Earthworm Diversity	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS=("earthworms")	90	20/03/26
Organic Pasture Drought	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS =(“grassland” OR “pasture”) AND TS =(“drought”)	10	20/03/2026

Sub-Theme	Search Terms	Number of Articles	Date of Search
Organic Leaching	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS=("leaching")	74	20/03/2026
Organic Soil Erosion	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS=("soil erosion" OR "soil loss")	77	20/03/2026
Organic Water Regulation	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS=("water regulation" OR "natural flood management")	1	20/03/2026
People			
General search	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND TS= ("socio-economic impacts" OR "socio-economic outcome" OR "social and economic outcomes" OR "socio-economic outcomes" OR "social sustainability")	36	13/03/2026
Community	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") (Topic) AND "volunteering" OR "farm visit" OR "school visit" OR "engagement" OR "citizen" OR "community"	916	20/03/2026
Work and labour and skills	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") ANDS "volunt*" OR "labour" OR "job"	224	13/03/2026
Diversification/market	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND market	858	31/03/2026

Sub-Theme	Search Terms	Number of Articles	Date of Search
Direct sales/short supply chain	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") (Topic) and "local market*" OR "diverse market*" OR "diversification" OR "direct sales" OR "direct"	486	31/03/2026
Place			
Organic Landscape structure / heterogeneity	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND ("landscape structure" OR "landscape composition" OR "landscape heterogeneity" OR "land cover diversity" OR "mosaic landscape*" OR "land use diversity" OR "field pattern*" OR "field size"))	427	23/03/2026
Organic linear features / boundaries	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND (hedgerow* OR "field boundary*" OR "stone wall*" OR "tree line*" OR "linear feature*"))	205	23/03/26
Organic presence of livestock in landscapes	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND ("mixed farm*" OR "crop-livestock" OR grazing OR pasture OR "permanent grassland*") AND ("landscape*" OR "cultural landscape*" OR "landscape heterogeneity" OR "landscape structure" OR "agricultural landscape*"))	75	23/03/26
Organic and cultural / historic landscapes	TS=("organic agriculture" OR "organic farming" OR "ecolog* farming" OR "ecolog* agriculture" OR "biolog* farming" OR "biolog* agriculture" OR "biodynamic farming" OR "biodynamic agriculture") AND ("cultural landscape*" OR "historic landscape*" OR "traditional landscape*" OR "landscape heritage" OR "historic environment"))	69	23/03/26
Organic and regional economy	AND ("rural development" OR "regional development" OR "regional resilience" OR "rural resilience" OR "local economy" OR "territorial development" OR "local food	322	23/03/26

Sub-Theme	Search Terms	Number of Articles	Date of Search
	system*" OR "short food supply chain*" OR "local value chain*" OR "embeddedness" OR "embedded food network*" OR "local multiplier")		