

Written evidence submitted by The Landworkers' Alliance

Introduction

The Landworkers' Alliance (LWA) is a union of farmers, growers, foresters and land-based workers. Our mission is to improve the livelihoods of our members and create a better food and land-use system for everyone. We are a democratic member-led union, run by producers for producers. All our policies, representation and training come from farmers, growers, foresters and land-based workers who have direct experiences of the issues we work on. We campaign for a food and land-use system where everybody, regardless of income, status or background has access to local, healthy, affordable food, fuel and fibre from producers they can trust.

We are submitting evidence because we embody a food and land-use system that operates within the finite limits of our earth, regenerates natural resources and cools our planet without compromising the ability of others around the world or future generations to provide for themselves. The work of our Membership in delivering Food Sovereignty for local and regional markets represents an ideal in terms of delivering genuine food security across the UK. We also believe that producer organisations and communities must be at the heart of decision-making and have a strong voice in agricultural and forestry policy making.

The LWA is a member of La Via Campesina, an international organisation of over 200 million small-scale farmers and agricultural workers unions around the world. We work with them to achieve a global vision of agroecology, food sovereignty and sustainable forestry.

Key points

- Food Sovereignty represents a more resilient aspiration than Food Security in responding to environmental change
- LWA Members have been increasingly affected by changing climatic conditions
- Substituting imported food supplies with domestically-produced alternatives will directly reduce the impact of international shocks and stresses on UK food security
- Increasing domestic self-sufficiency will result in immediate reductions of GHG emissions associated with the UK's food supplies
- Seed Sovereignty - decentralised open-pollinated seed production - is a foundation of resilient food systems
- Agroecological farming systems have the potential to mitigate domestic and international impacts of climate change
- A changing climate creates opportunities to expand diverse mixed-farming systems into all areas of the UK
- Decentralised resilient farming systems have the potential to deliver high quality, fresh and seasonal produce to local and regional markets at an affordable price for consumers
- Greater regulation of food imports is required by government in order to support the expansion of diverse and resilient mixed farming enterprises
- Specific support is required within the Future Farming programme to support new-entrant horticultural start-ups to meet the current deficit between domestic production and demand
- Government should provide targeted support to develop and expand innovative local food marketing and distribution models
- New food technologies cannot compete with resilient agroecological farming systems in delivering the desired balance between sustainable food production and net biodiversity gains

Direct responses to terms of reference

- *1: What are the main risks posed to future UK food security from projected climate change and biodiversity loss pathways?*

The main risks posed to future UK food security from projected climate change are dominated by frequent weather extremes causing stresses to conventional farming practices. The most obvious of these experienced by our Membership are drought, floods and high winds.

Drought conditions can cause direct sown horticultural crops as well as transplants to fail if irrigation is insufficient. Drought conditions can also adversely affect the maturing cycle of successional crops resulting in unpredictable harvest gaps. The impacts of flooding are much more localised and will depend on proximity to watercourses as well as soil type.

Horticultural losses to flooding will be caused by crops sitting in water-logged soils or under floodwater for prolonged periods. There is an additional risk of crop losses from contaminated floodwater. Extreme wind events have also proven particularly challenging for our horticultural Members with many experiencing damage to polytunnels, infrastructure and top-fruit crops during recent storm events.

In cereal production our Members may experience whole crop failures if moisture levels in the soil are insufficient to achieve germination during critical windows - February-April and August-October. Conversely flood events may also result in entire or partial crop failures depending on proximity to watercourses, poor drainage and soil type. Storm events may also result in partial crop failures to lodging and/or reduction in yields on particularly exposed and coastal sites.

Both our horticultural and arable Members are entirely dependent on natural pollinators to fertilize their annual crops. As a result their crop yields and livelihoods are dependent upon maintaining and protecting healthy populations of natural pollinators. Greater UK regulation of licensed agricultural pesticides over the past three decades has been welcomed by our Members - however significant concerns remain - particularly over recent derogations of neonicotinoid use in England.

Both the LWA's horticultural and arable Membership include leading experts in the field of open-pollinated seed saving. The union supports ongoing dialogue and research and development into the potential of open-pollinated crop varieties to annually adapt to a rapidly changing climate. We believe a balance approach to decentralised, but quality-assured, seed production is an essential tool in building genuine resilience for food security in the face of environmental change.

In livestock production our Members have directly experienced the impact of drought conditions on grass yields - particularly in 2022. Limited grass growth across the country as a result of reduced rainfall has impacted fresh grass available for forage as well as yields of winter fodder. The majority of our Members practice Pasture For Life (100% grass-fed) systems - leaving them particularly exposed to low grass yields as a result of drought conditions. Extreme winter rainfall events can also result in soil degradation on farms that out-winter livestock.

- *2: Where does the UK's food come from? On the current climate change trajectory, how will these regions be affected by climate change and what will the impact on UK food security be?*
According to Defra's most recent assessment the UK currently produces 60% of domestic food consumption by economic value. 14% of this volume is currently exported leaving us 46% self-sufficient in domestic consumption. By default 54% of the food consumed in the UK is dependent upon international supply chains. This element of our food supply is exposed to an exponentially greater risk from global climate and geo-political shocks and stresses compared to domestic production.

There is no definitive projection on how climate change will impact the diverse make-up of the UK's food imports - however we propose that *any* dependence on non-domestic production inevitably carries a greater level of risk than domestically-produced alternatives. Likewise, although geo-political events will continue to impact domestic production through stresses on imported inputs - domestic production remains significantly more insulated from acute stresses and shocks than imported food products.

The LWA calls as a matter of urgency for The National Food Strategy to be revised to include an assessment of the vulnerability of our current 54% dependence on imported food - along with an assessment of the resilience gains that could be achieved by maximising the UK's domestic production: supply ratio. Climatic limitations dictate that the UK will never be able to achieve 100% self-sufficiency in food, however working towards this goal will inevitably deliver innumerable economic, social, environmental and carbon savings which can and should be quantified.

3: How do existing UK food production, import, and export practices contribute to climate change and biodiversity loss?

According to a 2022 report from the Centre for Research into Energy Demand Solutions - the carbon footprint of the UK's imported food supply is 20 MtCO₂ - equivalent to half the emissions of domestic production. Greenhouse gas emissions directly attributed to domestic food production and processing represent 20% of the UK's total consumption emissions. This excludes emissions that come from land use change in other countries that are attributable to UK food consumption. Primary production (farming) accounts for 56% of supply chain emissions. The energy used in processing, manufacture, transport, retail and food preparation accounts for 37% of all supply chain emissions.

Although reorientating UK agriculture exclusively for domestic production may result in a relative increase in domestic emissions - any increase will be vastly offset by the reduction in emissions from imports. Research has demonstrated that agricultural production for local and regional markets results in far less greenhouse gas emissions - partly because local food processing, packaging and transport inputs are minimal. Research by the LWA has demonstrated that a shift to domestic production of vegetable crops alone in the UK would reduce GHG emissions by 7% and our water footprint by 1.1%.

- *4: What practices could the UK adopt to become more self-sufficient while reducing the emissions associated with agriculture?*

The UK's centralised food supply system is heavily dependent on transport and production models that produce high emissions. This results in excessive packaging and high levels of food waste. Food waste also produces a lot of methane, contributing to GHGs. The reliance on global supply chains means our largest retailers (supermarkets) import produce from countries that are water scarce or facing their own environmental issues. Much of this food could be produced domestically.

Because farmers receive a greater percentage the food pound in local food systems, they can afford to accommodate marginally higher production costs associated with higher-labour, lower-emission farming systems. This contributes to an increase in agrobiodiversity, natural biodiversity and soil health, which are vitally important to the resilience and adaptability of our food system in the face of climate change and environmental degradation.

Decentralised routes to market also produce significantly lower greenhouse gas emissions because their food processing, packaging and transport needs are minimal. A study comparing transport emissions for regionalised and globalised supply chains estimated that regionalised food systems could reduce food transport emissions as well as contributing an essential component to achieving net zero targets by 2050.

- *5: How has the prolonged heat-wave and drought in 2022 affected food growing in the UK?*
See Above
- *6: How can the UK ensure that enough water is available for crop growing while preventing unsustainable levels of abstraction that can impact the ecology and resilience of our rivers, wetlands and aquifers?*

The majority of LWA Members practice regenerative farming techniques which prioritise the health of their soils. These practices include the rotation of green-manure crops that directly build organic matter in the soil. Research by the University of Reading demonstrates that every additional percentage of organic matter in a given soil can hold 100,000 litres of groundwater per acre. Prioritising soil organic matter has the potential to offset not only future drought events but also to mitigate the impacts of flood events by evening-out peak groundwater flows.

LWA livestock members also practice regenerative grazing techniques including the use of knitted-swards - highly diverse mixtures of native grasses and perennials - which reduce the impact of poaching in over-winter grazing systems. Combined with a preference for smaller native-breed sheep and cattle, responsible fencing of on-farm watercourses and traditional hedge-laying instead of flailing, these practices directly reduce the topsoil erosion into watercourses and subsequent silting of down-stream waterways.

Our horticultural and arable Members tend to farm on modest acreages compared to industrial arable farmers in areas prone to unsustainable levels of water abstraction. A typical 5-10 acre market garden supplying local and regional markets will average 10,000 litres of abstracted irrigation water per acre per year, significantly less than larger horticultural and arable units.

7: How will food-producing regions of the UK be affected by climate change? What can the UK do to support adaptation efforts in the countries and regions most affected?

Traditionally the UK experiences a roughly even split in agricultural land use between pastoral agriculture in the west of the British Isles and arable farming in the east. This reflects an historic trend of greater annual rainfall in western maritime counties and lower rainfall in those bordering the North sea. Recent evidence suggests these climate patterns are likely to be exacerbated by global warming - with the addition of more regular and unpredictable extreme weather events - most notably higher summer temperatures, cooler and wetter winters and increased winter storm events.

One emerging trend of a changing climate is greater opportunities for a return to traditional mixed-enterprise farming. Whereas the 1980's and 1990's were characterised by a trend of specialisation within the industry, changing climatic conditions - notably warmer spring and autumn temperatures - have encouraged experimentation with more temperate crops; cereals horticulture and viticulture further north and at higher elevations. Where groundwater reserves are sufficient and soils maintain high levels of organic matter - diverse cropping systems may well be introduced across predominantly pastoral regions throughout the west of the country.

Conversely in the east of the UK more extreme drought events can be predicted with fewer opportunities to diversify enterprises. Here it is suggested that emerging agroforestry systems have the potential to remediate exhausted soils, raise water tables and create conditions that could eventually support a transition to silvo-arable and silvo-pastoral farming systems.

Both of these transitions can contribute significantly to a drive for renewed UK self-

sufficiency by decentralising diverse food production across extensive areas of the UK. Both transitions can also be facilitated by targeted support for new-entrant start-ups and on-farm diversification through bespoke new entrant capital grants and grants supporting market gardens and added-value processing.

8: What is the Government doing to prepare for disruption to the UK's food supply resulting from climate change impacts or biodiversity loss?

Very little. The dilution of some of the progressive pilot measures, especially the Integrated Pest Management and Nutrient Management standards in the Sustainable Farming Incentive have significantly weakened what could have provided a framework on which to build UK self-sufficiency. These measures, alongside schemes specifically designed to support both food production and environmental measures in the horticulture, pork and poultry sectors are essential. The current move towards a Countryside Stewardship Plus scheme centres the bulk of support for farmers on grazing livestock and arable, with no plans to support climate friendly production in other sectors.

Deregulation of import controls and quotas have also undermined the UK's ability to protect domestic producers from lower-quality and higher-emission food imports. Again, its' the horticulture, pork and poultry sectors which are most vulnerable to low standard imports such as chlorinated chicken and pigs raised to very low animal welfare standards.

Government intervention to subsidise CO₂ production for industrial abattoirs during shortages resulting from the Covid pandemic in 2021 highlights the vulnerability of bottlenecks in the supply chain and centralised processing. Recent price shocks in imported synthetic fertilizers and energy for industrial arable and livestock units also highlights the risks associated with the dependence of large-scale producers on international supply chains. Support for Organic production, which reduces dependence on synthetic fertilizers would build resilience in the face of the rising cost of inputs and build climate resilience.

- *9: Does the Government's Food Strategy address the risks of climate change and biodiversity loss adequately? Does it prepare the UK to adapt to a world affected by ecological crises?*
The Government food strategy does illustrate the importance of a change in diets towards more consumption of fruit and vegetables but does not address the need to provide support for market gardens, urban farms, Community Supported Agriculture and other models of fruit and vegetable production which link consumers directly with producers improving access to healthy food and influencing healthy dietary change.

There also needs to be more emphasis on local supply chains with a first step being the development of local food distribution and processing facilities. Small scale local producers should also be linked with public procurement to provide healthy local food for schools and hospitals. The Food Strategy highlighted this as a recommendation but gave no clear commitment. The Food Strategy also needs to outline a clearer pathway towards increasing the amount of land under agroecological production. This would include incentives for organic farming and more research and development on Agroecology.

- *10: How effective would the market be at securing the UK's food supply in a situation of major food insecurity world-wide? To what extent could Government intervention be needed?*
The experience of our Membership illustrates that diverse, agroecological farming enterprises - supplying food directly to local and regional markets - are incredibly well insulated from international shocks and stresses. During the first few weeks of the first Covid lockdown our Members experienced unprecedented demand and interest in their produce and services. Coming when it did at the start of the growing season many of our Members were able to quickly adapt their cropping plans and growing systems in order to cater for additional

demand.

In addition the majority of our Members practice low-input Organic farming techniques which are largely independent of internationally-sourced inputs. As a result the disruption to the farming systems themselves was minimal. Many of our Members also support volunteering opportunities on their farms as an established element of their socially-inclusive farming systems. This meant they were well placed to absorb a sudden demand from furloughed members of the public to get out into the countryside and volunteer.

An equivalent future societal shock is likely to result in a similar demand from members of the public to become actively involved in local farming enterprises. Although our Members have demonstrated they have the skills and resources to absorb this demand on a small scale - additional government support in volunteer networking, recruitment and volunteer facilities could significantly improve preparedness and resilience.

11: Could the UK's land be better used to secure our domestic food supply? What role could community or urban food growing play in increasing the UK's resilience to food shortages caused by environmental change?

Around 71% of the UK land area was used for agricultural production in 2020. In the same year we were nearly 100% self-sufficient in the production of cereals, meat, milk and eggs - despite exporting and subsequently importing some categories of these products. The UK is 60-80% self-sufficient in sugar beet, potatoes and oilseeds - offering some potential to reorientate arable production towards these crops. The greatest deficit in domestic supply is in vegetables (54% domestic vs. 46% imported) and fruit (16% domestic vs. 84% imported). Clearly this highlights huge potential for targeted investment in building the UK's domestic horticultural sector.

New-entrant horticultural start-ups represent the single greatest demographic of the LWA's Membership making us uniquely placed to highlight the potential contribution of this sector. We need a specific incentive scheme to support the horticulture sector, as well as incentives within ELMS as tested in the tests and trials conducted by the LWA, to reward horticulture producers for both ecosystem services and also social services hosting school visits, volunteers, and community groups on their farms.

- *12: What role should the Government take in ensuring that land is available to secure the UK's food supply in the context of a changing climate?*

The delivery of the ELMS incentivises landowners to produce food and support jobs in diverse agroecological farming systems. The scheme should include clear targets for increasing the availability for consumers of local, agroecological, fresh farm produce. By default, food delivered directly from local farms to local and regional markets will have demonstrably lower associated emissions and climate change impact - than food imported from elsewhere in the UK or abroad.

Government should provide targeted support to develop and expand innovative local marketing and distribution models. There currently exists a spectrum of models from Community-Supported Agriculture schemes to farm-gate stalls, box-schemes, farmers' markets, food hubs, food assemblies and regional buying co-operatives that deliver immeasurable public goods compared to centralised and imported food systems. An additional element of ELMS should appraise the success of these existing schemes and identify the specific infrastructure and marketing support that would encourage them to expand across the country.

- *13: Does the Government's Food Strategy put the UK on a path to a secure and sustainable food supply?*

The Government Food Strategy falls short of creating a pathway to a more secure and

sustainable food supply. It completely ignores key recommendations from civil society to increase support for local and domestic food systems, including the small-scale horticulture sector, and does nothing to enact high standards in trade agreements which is absolutely the most important measure required to prevent domestic food production from being undercut by cheap and low standard imports.

- *14: What are the most environmentally friendly ways of producing a secure supply of nutritious food?*

On-farm the most environmentally friendly models are centred around an agroecological approach that prioritises soil health. Secondary is an approach that prioritises diversity over specialisation - diverse cropping in horticultural systems, diverse populations in cereal production and diverse grazing pastures and grazing patterns in pastoral production. In addition any element that reduces the farm's dependence on external inputs for seeds, compost, fertility, processing and packaging will ultimately result in net benefits for the environment.

From the farm-gate the ideal would be to supply produce as locally as possible in order to reduce the environmental impact of distribution and packaging requirements. In addition local marketing should deliver - as near as possible - 100% of the food pound from the consumer to the producer. If this can be achieved the producer should be able to supply fresh, seasonal and local produce to local consumers at an affordable price - that in turn can support higher levels of employment associated with lower-impact farming practices.

- *15: What role could a reduction in meat and dairy consumption play in improving food security and what measures could the Government take to capitalise on the trend to plant-based diets?*

It is undeniable that meat and dairy have a greater proportional impact on the environment than horticultural and arable produce. The LWA supports a transition to a society in which meat and dairy produce is valued for the quality of the farming systems and animal welfare they support. However we also recognise that livestock production can contribute an essential element to progressive mixed farming enterprises - particularly where locally-adapted livestock breeds are rotated through diverse pastures at appropriate stocking densities.

In order to support more people to transition to plant-based diets the Government should provide specific support for public access to working farms. It is suggested increased transparency between consumers and producers will directly improve public understanding of how to cook and eat more seasonal fruit and vegetables.

- *16: What role do food technologies have in mitigating the risks that environmental changes poses to UK food security?*

News food technologies - such as precision fermentation - may have a role to play in delivering protein-rich food supplements to specific communities in food-deprived areas and/or high population concentrations, however the LWA rejects the wholesale promotion of these technologies as a solution to achieving future food security.

There is a popular trend to link these technologies to a perceived complimentary drive for re-wilding the British countryside. Whilst there is significant support for elements of re-wilding within the LWA Membership we are - at heart - a union of Landworkers' and there is an inherent contradiction in the goal of widespread re-wilding vs. supporting a thriving, progressive and diverse rural economy.

On balance we believe there are numerous gains in both environmental and social public goods that can be achieved through a transition towards decentralised agroecological mixed farms producing fresh food for local and regional markets - long before laboratory-grown proteins can be justified in order to offset abandoning productive farmland to wilderness.

17: Is there research and development the Government could be funding to provide food security solutions?

Government should provide more R& D on:

- In-situ and ex-situ breeding and conservation of agrobiodiverse diverse, climate resilient seeds
- Improving yields in agroecological/organic systems
- Feeding waste food to pigs and chickens safely
- Agroforestry systems
- Integrated pest management
- Innovative local food distribution and processing systems

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