



## The path to UK food security

### Wildlife & Countryside Link policy briefing

#### Executive summary

Concerns about food price increases in the wake of the invasion of the Ukraine have sparked discussions about UK food security.

A knee-jerk reaction to rising food prices by increasing food production in the UK will not solve the problem for people, nor will it be good for nature or climate. In fact more efficient and environmental production is the best solution both short-term social concerns and for long-term food security. Two of the biggest drivers of rising and volatile costs for farmers and rising food prices are the costs of fossil-fuel based inputs from unstable regimes, and the impacts of biodiversity loss and climate change-driven extreme weather.

The Government should protect farmers and people from increasing food costs by reducing the reliance on imported fertiliser and fuel in the farming sector through:

- Smarter and more efficient fertiliser use. Currently, 40% of fertilisers used in the UK are wasted
- A transition to a sustainable farming system to reduce the need for fertiliser.

Simply increasing UK food production is not the answer:

- It will not lower food prices to the consumer, which depend on global market prices and a range of rising input costs.
- As an example, during WWII ploughing up an extra 6% of agricultural land only increased food production by 0.5% per year.

### The drivers of UK food insecurity

#### 1) A reliance on imported fertiliser and fuel

As gas prices increase (as they did over 2021) so too do the costs of fertiliser, which requires gas for its production as both a raw ingredient, and because it is an energy-hungry process. Across the world, fertiliser prices rose by 200% in 2020, due to increases in gas prices. This cost volatility has been even more acute for imports from Russia, in the run up to and fallout from the invasion of Ukraine. This is a particular problem from the UK, which buys around 38% of its urea fertiliser from Russia, with over 20% of the fertiliser we use overall coming from that country in 2020. If the UK maintains its reliance on fossil-fuel fertilisers there is a risk they will increasingly be used in future as a geopolitical weapon by the likes of Vladimir Putin to threaten food shortages.



The war in Ukraine has caused these costs to rise further – a new ECIU report suggests that if March 2022 prices persist for 12 months the extra fertiliser bill for British farmers over that period could be £760 million, assuming farmers purchase and apply the same quantities of chemical fertiliser as a normal 12 month period.<sup>1</sup>

Similarly, the increase in international gas prices is causing the cost of fuel for UK farmers to rocket, with practices such as growing vegetables in heated glasshouses becoming more costly.

Rising fertiliser and fuel costs were the main cause behind “agriflation” (the index of rising costs for farmers) in 2021 – rising by 51.24% and 76.92% respectively.<sup>2</sup> Yet 40% of fertiliser used in the UK is wasted.

The UK’s reliance on imported gas, and the fuel and fertiliser linked to it, is the main driver behind increased costs for farmers and the consequent food price increases.

## 2) Growing damage from climate & ecological breakdown

As well as costing more to produce, food from UK farms is reducing in quantity due to climate and ecological breakdown.

As the Government’s own Food Security Report 2021 highlighted:

*“Climate change and emissions pose significant risks to production and food security. As a consequence of unusual weather patterns associated with climate change, wheat yields in 2018 were 7% below the 2016 to 2020 average, and in 2020 were 17% below that average.”<sup>3</sup>*

These declines affect the majority of foods produced in the UK. The long hot summer of 2018, of a type we can expect to see more of in the years ahead saw onion yields down 40%, carrot yields down 25% and potato yields down 20%. Livestock farming is not immune - risk of thermal heat stress in dairy cattle is projected to increase by over 1000% in Southwest England, the region with the most dairy cattle.<sup>4</sup>

These changes are of understandable concern to farmers. 2021 research from the University of Exeter found that each and every farmer interviewed “had experienced or witnessed issues caused by extreme weather such as heavy rain or prolonged dry spells in recent years, and expected these to intensify further”.<sup>5</sup>

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<sup>1</sup> <https://ca1-eci.edcdn.com/Food-farming-fertiliser-March-2022-ECIU.pdf?v=1648124498>

<sup>2</sup> <https://agritradenews.co.uk/news/2021/11/01/af-records-22-farm-input-inflation-to-september/#:~:text=The%20AF%20Group%20has%20measured,inflation%20is%20now%20rising%20faster>

<sup>3</sup> <https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2021/united-kingdom-food-security-report-2021-theme-2-uk-food-supply-sources#united-kingdom-food-security-report-2021-theme2-indicator-2-3-2>

<sup>4</sup> Ibid

<sup>5</sup> [https://www.exeter.ac.uk/news/homepage/title\\_857812\\_en.html](https://www.exeter.ac.uk/news/homepage/title_857812_en.html)



Soil erosion, a consequence of ecological damage caused by intensive farming practices and of climate change, is also curtailing UK food production. As highlighted by the Food Security Report:

*“Estimates suggest soil degradation, erosion, and compaction result in losses of about £1.2 billion each year and reduce the capacity of UK soils to produce food.”*

### An escalating crisis

The reliance on fertiliser and fuel from overseas gas is increasing UK farming costs, just as climate and ecological damages are reducing the amount of UK food produced. These are two closely linked problems, with the former exacerbating the latter.

The overuse of chemical fertiliser scars soils and pollutes waterways, reducing the ability of the land to produce food. **An average 40% of nitrogen fertiliser used in the UK is left unused or leaks into the environment**, contributing to soil erosion and exacerbating climate change by evaporating into the environment.<sup>6</sup> A continued reliance on fuel and other fossil fuels on farms also means that the agricultural sector continues to be a significant emitter of carbon – farming makes up 0.52% of our GDP<sup>7</sup>, but 12% of our territorial greenhouse gas emissions.<sup>8</sup>

**If UK farming continues to operate to recent precedent, continued fuel and fertiliser reliance will make production yet more expensive in an increasingly uncertain world**, whilst contributing to an accelerating climate and ecologically driven decline in yields. **The status quo is an escalator to chronic food insecurity.**

### **The solutions to UK food insecurity**

- 1) Reducing fuel and fertiliser use will make farming costs and food prices more stable

As described by the Nature Friendly Farming Network:

*“The events in Ukraine have inadvertently exposed the vulnerability of a food system that is heavily reliant on a range of inputs from around the world, which are often environmentally damaging, finite and at risk from climate change. On a farm business level, reliance on costly inputs hinders profit margins and negatively impacts environmental resilience. If food security is to be a genuine aim, then we need to reduce reliance on these inputs.”<sup>9</sup>*

The Government should be doing more to help farmers lessen their reliance on these inputs - to transition away from fossil fuels and chemical fertiliser. According to Government data only 31% of farms were using solar energy in 2019. NFU data suggests that only 5% of farmers currently use at

<sup>6</sup> <https://www.cpm-magazine.co.uk/2021/10/07/nature-natters-getting-to-the-root-of-the-problem/>

<sup>7</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1049674/agricaccounts\\_tiffstatsnotice-16dec21i.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1049674/agricaccounts_tiffstatsnotice-16dec21i.pdf)

<sup>8</sup> <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019>

<sup>9</sup> <https://www.nffn.org.uk/nffn-response-to-ukraine-war-why-producing-more-is-not-the-answer/>





least one electric vehicle on their farms.<sup>10</sup> Similarly, technical innovations to reduce fertiliser use, from plant and waste alternatives<sup>11</sup> to more efficient AI fertiliser spreading technology, have been neglected. Many of these innovations are being led by British firms, such the Salisbury based small robot company<sup>12</sup> and the Swindon based CCM technologies.<sup>13</sup>

A sustained drive to free UK farmers from dependence on imported fossil fuels and chemical fertilisers will deliver significant and sustained savings for farmers, reducing the cost of food production into the long term, as well as helping to tackle climate and ecological that threatens agriculture's very future.

## 2) Accelerating the farming transition can achieve net zero and increase food security

Many farmers are already managing soils to improve their health and reduce the need for chemical inputs. One survey found that 92% of farmers are already using some form of sustainable soil management<sup>14</sup>, with others going further and cutting out chemical fertilisers altogether to replace them with plants that restore soil richness naturally.<sup>15</sup>

These farmers can be better supported, and the climate and ecological threats to the future of farming need addressed, by speedily completing the transition to the Environmental Land Management (ELM) system of incentivising farmers to deliver public goods, ensuring that farming contributes to climate mitigation and to nature's recovery. Soil management can be especially important alongside restoring habitats that bring back pollinators and species that provide natural pest control.

Evidence shows that climate and nature friendly farming doesn't just prevent further declines in outputs – it can actively increase yields. For examples, studies show that laying down new wildflower strips on arable land can improve crop yield by up to 10%, by boosting pollinator numbers<sup>16</sup>. On the contrary, a 30% decline in pollinator numbers over 10 years would cost more than £188m per year in lost crop yield.<sup>17</sup>

Whilst still committed on paper to the transition to ELM, the Government's implementation of it to date has not reflected the urgency of a factor that the UK Food Security Report believes "*poses a risk to UK food production already, and this risk will grow substantially over the next 30 to 60 years.*" Government messaging on ELM has explicitly shifted to favour an "an evolution, not a revolution" in policy<sup>18</sup>, with

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<sup>10</sup> <https://www.nfuonline.com/archive?treeid=118573>

<sup>11</sup> <https://link.springer.com/article/10.1007/s11104-021-05246-8>

<sup>12</sup> <https://www.smallrobotcompany.com/>

<sup>13</sup> <https://ccmtechnologies.co.uk/>

<sup>14</sup> <https://www.sheffield.ac.uk/sustainable-food/research/translational-transformative/achieving-sustainable-soil-management-uk#Research%20findings>

<sup>15</sup> [https://www.nffn.org.uk/wp-content/uploads/2021/04/NFFN-Case-Study-Leaflets\\_JOHNNIE-BALFOUR-1.pdf](https://www.nffn.org.uk/wp-content/uploads/2021/04/NFFN-Case-Study-Leaflets_JOHNNIE-BALFOUR-1.pdf)

<sup>16</sup> <https://royalsocietypublishing.org/doi/10.1098/rspb.2015.1369>

<sup>17</sup> <https://www.ceh.ac.uk/news-and-media/news/pollinator-monitoring-more-pays-itself>

<sup>18</sup> <https://www.wcl.org.uk/whither-the-revolution-reviewing-the-agricultural-transition-over-a-year-in.asp>



the detail of the first component (the Sustainable Farming Incentive) being heavily criticised by nature and climate organisations for a lack of urgency and ambition.<sup>19</sup>

The Government must speed up the development of ELM to ensure that farmers are given the support and tools they need to reduce and reverse climate and ecologically driven declines in yields.

### The wrong solution

A simplistic narrative has emerged in some parts of the media over recent weeks, suggesting that the war in Ukraine will significantly reduce global wheat supplies to the UK and that in response to UK should focus on growing more food more intensively, pausing the farming transition in order to do so.

This is an erroneous premise and an erroneous conclusion.

Whilst wheat from Ukraine and Russia amounts to 25% of global exports, exports comprise a very small proportion of the global wheat crop (as most nations mainly consume their own wheat). This means that wheat from Ukraine and Russia disrupted by the war amounts to only 0.9% of global crop, a shortfall already largely made by increased planting elsewhere.<sup>20</sup>

The war in Ukraine has made an existing fuel and fertiliser price problem for UK producers worse, rather than creating a new wheat supply issue.

**Putting more land into food production will not solve the problem.** During WWII ploughing up an extra 6% of agricultural land only increased food production by 0.5% per year. Furthermore, **producing more food domestically won't drive down the cost of food to consumers**, because fertiliser costs are still high, making food more expensive to produce.

. A swift increase in farming intensity would require increased use of the very fuels and fertilisers that are rocketing in price, worsening the current costs crisis for farmers. Farmers will struggle to grow more food during a fuel and fertiliser price hike. Crucially, the increased use of fuel and fertiliser and pause on nature and climate friendly farming would also exacerbate the environmental damage caused by agriculture, increasing the severity of a range of significant, long-term threats to food security, from soil erosion to drought.

**A pause to the farming transition would do nothing to increase food security in the short term, while worsening it in the long term. Calls for a pause should be decisively rejected, in favour of targeted and urgent action on the actual causes of food insecurity – a reliance on fertilisers and fuels from overseas and the growing harms caused by environmentally damaging farming.**

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<sup>19</sup> <https://greenallianceblog.org.uk/2021/12/17/why-the-governments-recent-farming-policy-announcement-got-it-wrong-and-what-needs-to-happen-next/>

<sup>20</sup> See thread from crop expert Dr Sarah Taber [https://twitter.com/SarahTaber\\_bww/status/1507776806090584065](https://twitter.com/SarahTaber_bww/status/1507776806090584065)



**For questions or further information please contact:**

Matt Browne & Hannah Conway, Wildlife and Countryside Link

E: [matt@wcl.org.uk](mailto:matt@wcl.org.uk) [hannah@wcl.org.uk](mailto:hannah@wcl.org.uk)

*Wildlife and Countryside Link (Link) is the largest nature coalition in England, bringing together 65 organisations to use their joint voice for the protection of the natural world*

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