Technical paper

What's driving up food prices during England's agricultural transition?

November 2026

Summary

The way farmers in England are supported is changing. Between 2021 and 2027, the Basic Payment Scheme from the EU's common agricultural policy, which paid a per hectare subsidy, is being replaced with a set of agri-environment schemes. These provide income to farmers for delivering public goods, such as flood protection and nature restoration.

This transition is taking place during a period of high food prices for consumers with prices rising 38 per cent in the past five years.[1] We now face a new energy crisis, and the expectation is that food prices will spike again.[2]

With households still feeling cost of living pressures, there is a risk that an increase in food price inflation could be blamed on England's transition away from area-based farm subsidies.

We have looked at where food inflation is occurring in the supply chain, to understand whether the farming transition is having an impact on food prices. We also analysed the effect of specific agri-environment schemes and environmental regulations.

We found that a representative basket increased in price by £5.68 between 2021 and 2026. Of that increase, £4.48 occurred after food left the farmgate, while farmgate prices increased by £1.20, £1.17 of which was driven by the increase in farmers' input costs. As any inflation caused by agri-environmental schemes would be seen in farmgate prices, we conclude their impact has been minimal.

Compared to other nations in north west Europe with retained area-based subsidies, trends in English crop yields are broadly consistent. Cereal production has not fallen more than in other European countries, though the area used for arable crops has fallen slightly during the agricultural transition. This is unlikely to have driven significant price rises as English wheat prices track international commodity markets.

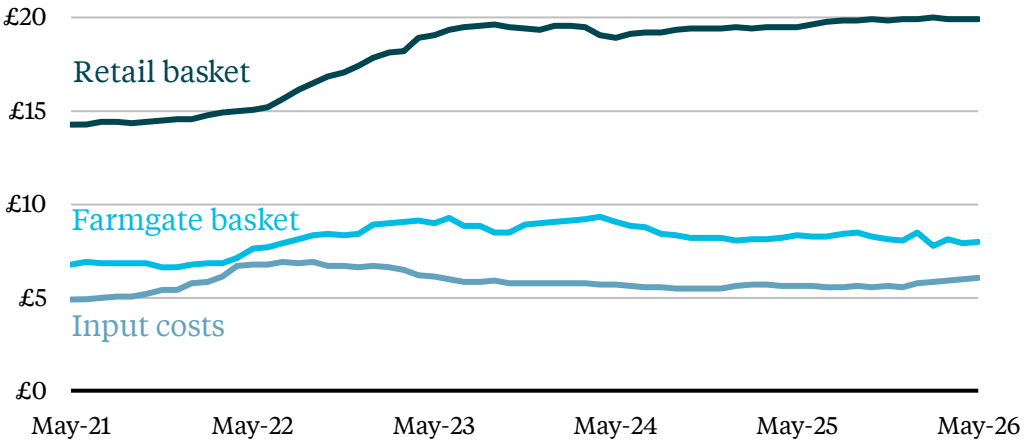
Overall, our evidence suggests the farming transition is not a significant driver of food price inflation. To bring down food prices, government must accelerate decarbonisation across the food supply chain to reduce exposure to fossil fuel price volatility.

Changes in the price of a representative shopping basket

In the past five years, the cost of a representative food basket has risen rapidly.[3]

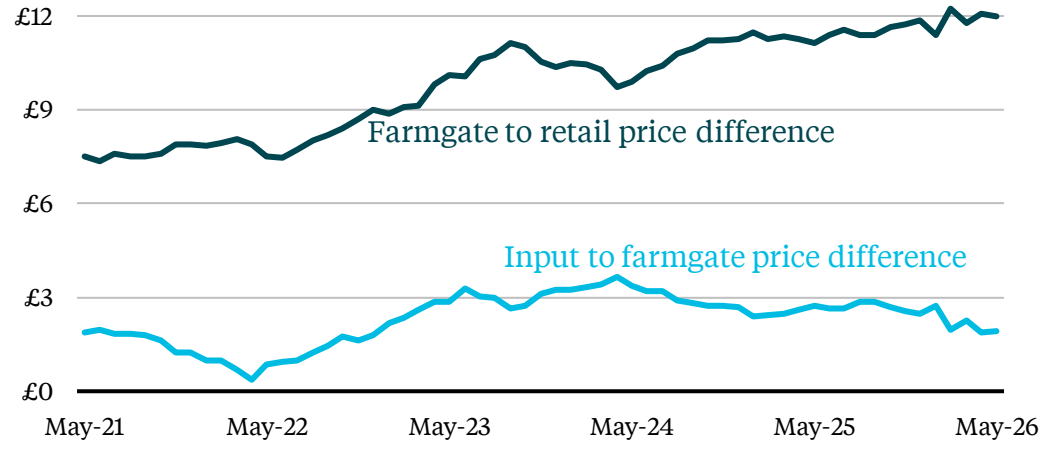
A selection of food items totalling just over £14 in 2021 now cost nearly £20. Food prices increased quickly in the wake of the Russia-Ukraine war, with £5 of the increase occurring between January 2022 and August 2023.[4]

Cost of a representative basket at stages in the supply chain[5]



This increase has been almost entirely driven by costs incurred after food leaves the farm. Between May 2021 and May 2026, the price farmers sell the products in our basket for, ie the 'farmgate' price, has increased by £1.20, with farm input costs increasing by £1.17, compared to a £5.68 increase in retail prices.[6]

Price differences between stages in the food supply chain[7]



The difference between farmgate and retail prices has leapt from under £7.50 in 2021 to £11.98 in 2026. By contrast, the difference between the price of inputs used on farms and the farmgate sale price has changed by just 3p

over the same period, up from £1.87 to £1.90. This shows that higher retail prices are not being driven by farmers increasing their margins.[8]

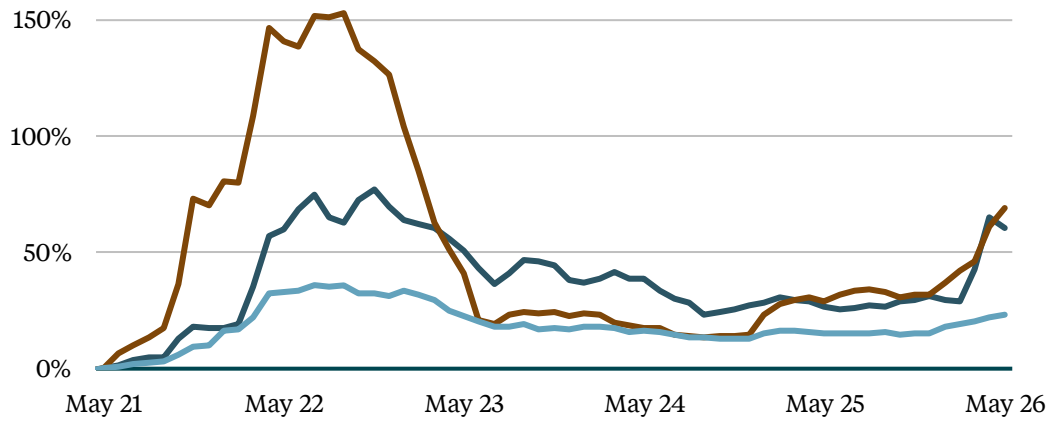
How have input and selling prices changed for farmers?

Input costs

Significant pressures have raised the cost of farm inputs in recent years. Input costs covered by the Agricultural Prices Index (API) have risen 23 per cent in the past five years, driven by spikes in energy and fertiliser prices due to geopolitical instability.[9]

Input prices peaked in 2022, at 35 per cent above their level in May 2021. Fertiliser was about 2.5 times its 2021 price in late 2022, while energy was about 1.8 times higher over the same period.[10] A similar crisis could now be on the horizon due to the effect of the US-Iran war, although early signs do not point to this having such a severe impact on prices.

Relative input price changes since 2021

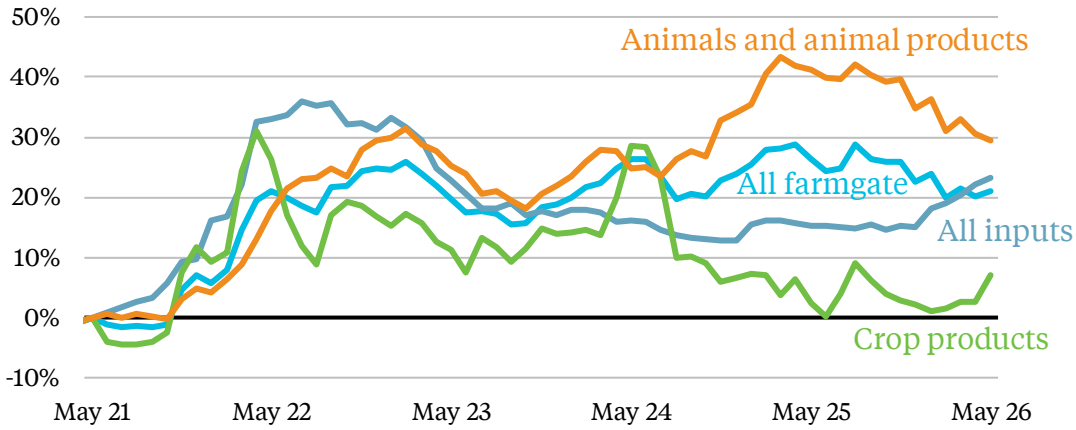


The graph above shows farmers have entered another period of price pressure since March 2026, the second serious spike in the past five years. If previous patterns hold, this is likely to drive increases in retail prices.

Farmgate prices

The prices at which farmers sell their produce have risen by 20 per cent, slightly less than the input price.[11] Farmers absorbed input price rises in 2021-22, before increasing their margins (the difference between inputs and farmgate selling price) in 2024-25. With the outbreak of the US-Iran war, their margins have tightened again.[12]

Relative price changes at the farmgate and for farm inputs[13]



While farmgate prices of crops rose fastest in the build up to the Russia-Ukraine war, they have steadily declined since April 2022, although there has been a small uptick in recent months. However, over the course of the past five years, crop prices at the farmgate have only risen seven per cent.[14]

If the farming transition was causing food price inflation, it would be seen in farmgate crop prices increasing beyond the rise in input costs. But this is not the case. The transition to agri-environmental payments appears to have had a minimal, if any, impact on crop price inflation.

On the other hand, farmgate prices of animals and animal products have risen by 30 per cent in the past five years, outpacing increases in input costs. These prices peaked much more recently, in 2025, before falling slightly in the past year.[15] This appears to follow trends in higher livestock prices on global markets, including in the EU, rather than being isolated to England.[16] Other analyses have found that red meat prices are experiencing inflation due to the impacts of climate change.[17]

How much have costs risen due to higher energy costs?

Energy prices make up just under ten per cent of farmers' input costs, including the indirect energy cost embedded in the cost of fertiliser.[18] The cost of gas makes up around 60-80 per cent of the input cost of nitrogen fertilisers which, in turn, make up around 60 per cent of the UK's fertiliser use.[19,20]

Beyond the farmgate, the processing, transportation, wholesale and retail stages of getting goods to market all add energy costs. This is particularly true of road transport, where fuel is around 60 per cent of road freight companies' total cost of ownership (a proxy for cost over the lifetime of a lorry).[21] For food processing, manufacturing, wholesale and retail businesses energy costs make up around six to ten per cent of their input costs.[22]

Increases in these costs have contributed significantly to post-farmgate inflation.

Moving the country away from fossil fuel energy sources will be vital to help stabilise prices. The Climate Change Committee's (CCC) balanced pathway towards a net zero carbon economy shows there will be reductions in the annualised cost per unit of electricity, compared to the status quo, of eight per cent by 2030, 18 per cent by 2035 and 25 per cent by 2040.[23]

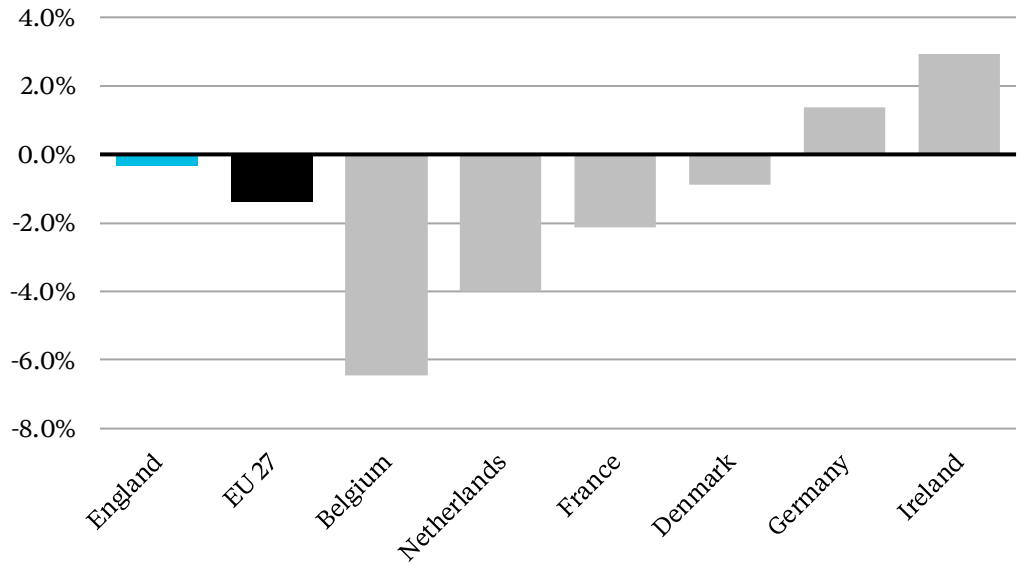
Our research, published earlier this year, showed that a zero emissions vehicle mandate on road freight transport would be disinflationary, and would protect the UK from inflation caused by volatile fossil fuel costs.[24]

How have yields, production and profitability been affected by England's farming transition?

Changes in crop yields compared to countries with area-based farm subsidies

England's cereal yields have not fared as badly as many countries in north west Europe. Between 2021 and 2024, there was negligible change compared to the average yield in the preceding four years. Belgium, Denmark, France and the Netherlands all saw bigger declines.

Change in cereal yields: 2021-24 average compared to 2017-20[25]



The graph above shows no evidence that England has suffered a decline in cereal yields as a direct result of its transition away from the EU's Basic Payments Scheme model to agri-environmental payments under the new Environmental Land Management (ELM) schemes.

Total production of cereals in England has fallen slightly due to the area under crops shrinking (see below). This trend in total production is consistent with other north west European countries, suggesting English

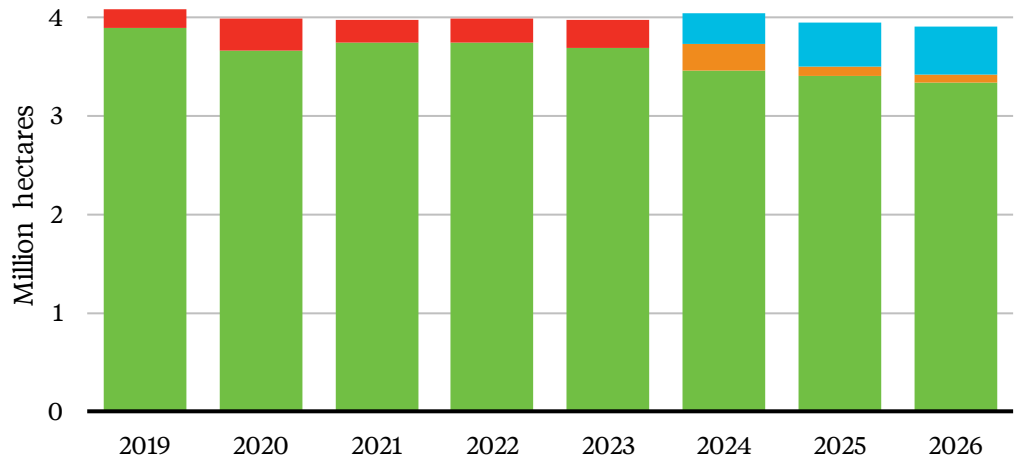
harvests have not been disproportionately worse than those in EU nations with area-based farming subsidies.[26]

Are agri-environmental schemes driving a rise in fallow land?

Agri-environmental schemes provide incentives for farmers to take actions other than planting crops, such as creating buffer strips around fields and planting pollen and nectar rich flower mixes. This could result in reduced crop production.

Between 2019 and 2026, the total arable crop area has fallen by 14 per cent, from 3.9 million to 3.3 million hectares. Uncropped land increased over the same period from 191,000 to 566,000 hectares.[27]

Land use by arable cropland, uncropped arable land, bare fallow and arable land used for environmental benefit and not in production[28]



In 2024, arable land used for environmental benefit was 305,000 hectares. This corresponded to reduction in arable cropped land of 235,000 hectares, indicating most of the land used for environmental benefit had been arable land, rather than land that was previously fallow.[29]

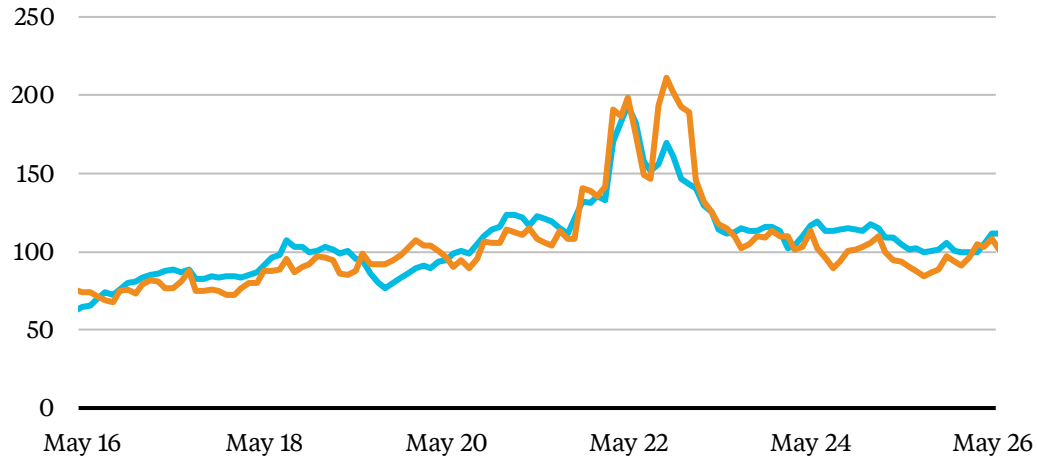
Some of the reduction in land used for growing arable crops in 2024 may be attributed to the fertiliser price spike in 2022. There is evidence that farmers decided to plant fewer crops due to the high cost of fertilising the land, the effect of which will not have shown up, in some cases, until 2024.[30]

Between 2024 and 2026, arable land used for environmental benefit increased by 179,000 hectares, while bare fallow land decreased by 194,000 hectares over the same period.[31] This indicates that the introduction of agri-environmental schemes led farmers to use former cropland for environmental schemes, but that they have also used land that was previously fallow.

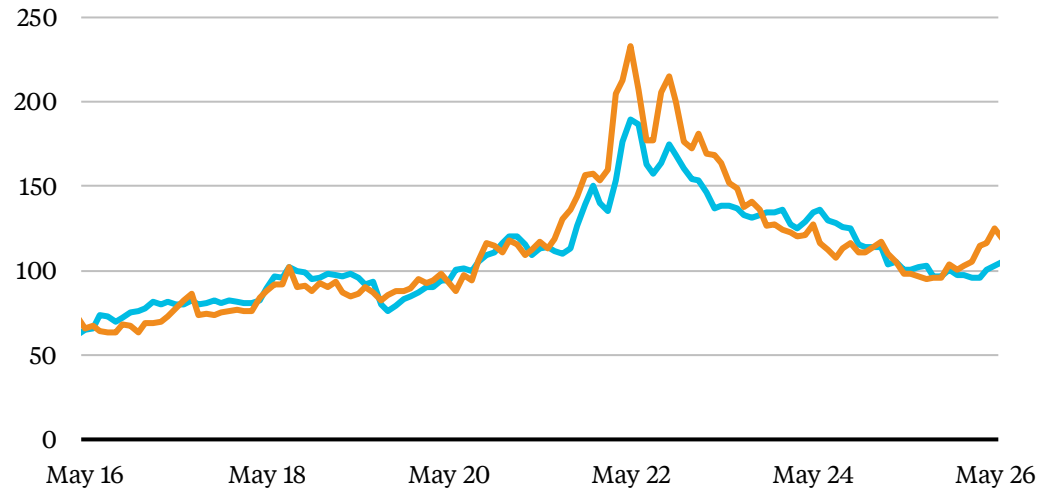
However, this is unlikely to have driven food price inflation as the price of wheat, which made up 49 per cent of arable cropland in 2025-26, is largely

decided by global commodity markets.[32] How closely UK and US prices track each another is shown in the graph below. Although this is unlikely to have increased food prices, reductions in cropland without compensatory yield increases or changes in demand will necessitate imports which put additional pressure on global ecosystems our food security depends on.[33]

UK and US milling wheat prices in GBP (indexed to 2020 average = 100)[34]



UK and US bread wheat prices in GBP (indexed to 2020 average = 100)[35]

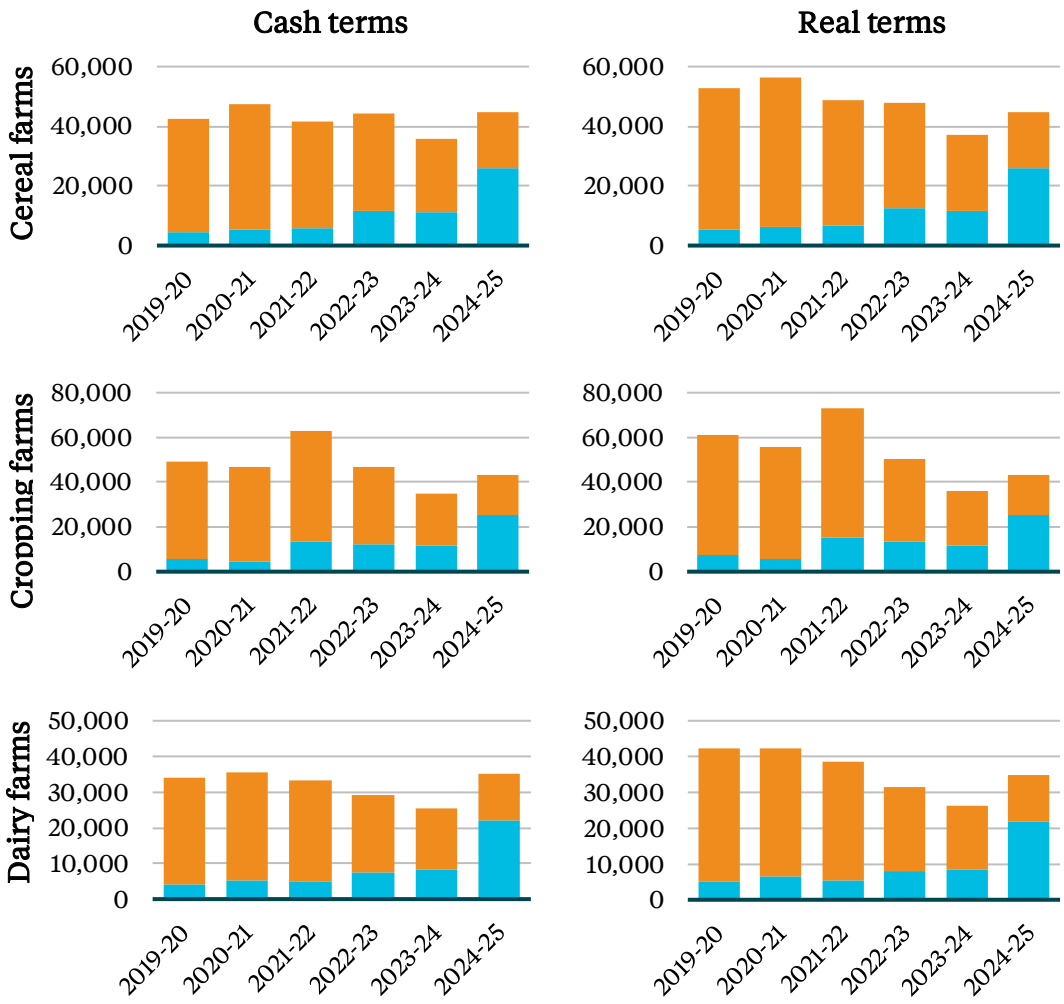


Have payments to farmers been consistent throughout the transition?

We have studied the payments farmers have received so far during the agricultural transition. We present these in two ways: in cash terms, ie the amount paid each year; and, in real terms, the amount adjusted for inflation and expressed in 2025 prices.

In cash terms, farm income from the combination of the gradual phase out of the Basic Payment Scheme and the new agri-environment schemes has held relatively steady for cereal and dairy farms since 2019.[36]

Basic payments and agri-environmental payments in cash and real terms for select farm types, per year (£) [37]



However, general cropping farms have seen a small fall in their combined income from these schemes since 2019-20. Nonetheless, inflation has eaten away at the value of payments in real terms, meaning that, from 2019-20 to 2024-25, cereal, cropping and dairy farms' average incomes from government schemes have reduced by 16 to 29 per cent.[38]

This has a potentially inflationary impact. If farmers receive less income from support payments they may increase the price at which they sell their

products to compensate. However, from our analysis described earlier, this does not seem to be occurring.

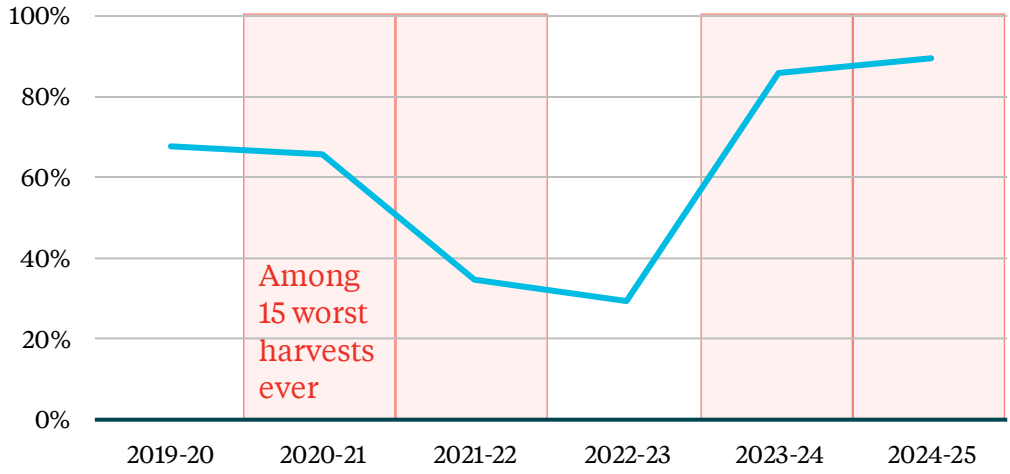
To help counter this risk, it is important that the government keeps the farming budget rising in line with inflation to prevent farm incomes falling due to inflation.

Do farm payments protect profitability in difficult years?

In the past six years, England has had its worst (2026), second (2020), third (2025), fourth (2024) and twelfth (2021) worst harvests since 1984.[39] The impact of this on 2026 farm income is not clear as the data is not yet available. In these years, arable farms have been subjected to significant challenges. This is when government payments to farmers are most important to maintain profitability.

Cereal farms' dependence on agri-environmental payments declined from 2020-21, before jumping in 2023-24 and 2024-25. This suggests agri-environment schemes are providing essential income, supporting cereal farms to remain profitable in years when there are poor harvests.[40]

Income from agri-environmental payments as a per cent of cereal farm income (after costs)[41]



Are environment regulations on farms helping or hindering in a time of high food price inflation?

The evidence above suggests that the farming transition since 2019 has not been a significant driver of food price inflation.

The same question around inflationary impact should be asked of broader environmental regulations on farms, which we explore below through the lens of two specific regulations.

Farming Rules for Water

The Farming Rules for Water require farmers to take precautions to prevent water pollution. The government's assessment, when the rules were introduced in 2018, was that these rules would cost farm businesses £10.3 million per year but save them £35.2 million per year through the more efficient use of inputs.[42] This assessment suggests the rules should have reduced costs for farmers whilst having no impact on food prices.

The wider benefits of these rules also outweigh the costs. Over the ten years following their introduction in 2018, including and beyond the costs and benefits to farm businesses, the Farming Rules for Water were expected to cost £96 million but deliver £536 million in benefits.[43] That is a benefit-cost ratio of more than five to one. Most of the benefits are in the form of savings to farmers, as well as lower drinking water treatment costs.

Our analysis suggests that preventing pollution at source, as the Farming Rules for Water aim to do, is considerably cheaper than the cost of dealing with highly polluted catchments later. We find that the Farming Rules for Water reduce nitrogen and phosphorus pollution at a cost of £7 and £51 per kg respectively (not including the benefits savings detailed above).[44] By comparison, 'nutrient neutrality' credits, which housebuilders are required to buy to offset pollution in heavily affected catchments, cost thousands of pounds per kg of nitrogen and tens of thousands of pounds per kg of phosphorus.[45,46] While the approaches are not directly comparable, this scale of difference demonstrates the value of preventing agricultural pollution, rather than paying to mitigate it later.

However, the Farming Rules for Water have not gone far enough to reduce pollution. Serious agricultural pollution incidents are not declining, and the pollution reduction expected from the rules is well below the Environment Act's target for 2030. Therefore, stronger measures are needed.

Livestock permitting

One option to go further is to extend the environmental permitting regulations scheme for livestock. Currently, large pig and poultry farms must obtain permits which require the use of established methods to reduce pollution. The government has committed to consult on extending this system to beef and dairy farms.[47]

According to our analysis, requirements introduced through permitting could lead to significant improvements in public health at relatively low cost. For example, covering slurry stores reduces ammonia emissions, which cause respiratory problems, as well as harming the natural environment. A fixed cover costs an estimated £1.48 per cubic metre each year.[48] For a previously uncovered store without a natural crust to reduce emissions, a cover avoids ammonia harm to health and the environment equivalent to around £5.15 per cubic metre.[49] Even when a store already has a natural

crust, the saving from avoided harm is still estimated at £3.22 per cubic metre, which still outweighs the cost.[50]

Extending the use of fixed covers to all currently uncovered beef and dairy slurry stores across England would cost approximately £32 million per year while avoiding an estimated £88 million in harms from ammonia.[51] This equates to £2.76 of public benefit for every £1 spent, before accounting for the benefits to farmers from retaining more nitrogen in their slurry and reducing rainwater ingress.

The effect on food prices of these measures would be extremely small, even if this cost was passed down the supply chain. Our analysis found the increase would be equivalent to increasing the price of milk by 0.39 per cent and the price of beef by 0.11 per cent.[52] However, government schemes to help farmers with the costs of such upgrades could eliminate any potential impact on food prices.

Stronger regulations deliver benefits without increasing food prices

In the case of both regulations described above, preventing pollution at source would be more cost effective than dealing with its consequences, or paying to offset it later. The government should help farms to invest in infrastructure improvements through grants and agri-environment schemes wherever regulation imposes costs on them but has wider financial benefits for society. In this way, regulations can be strengthened, while avoiding additional pressure on farmers' already tight margins.

Recommendations

Our evidence suggests weakening environmental protections on farms or slowing the agricultural transition would not cut food prices. Much of the recent increase in food prices has occurred beyond the farmgate.

Reversing the agricultural transition or weakening environmental regulations relevant to farming would fail to address the main causes of food inflation while leaving farmers more exposed to the negative impacts of pollution and climate change.

A more effective approach to improving food security should be to target vulnerabilities in UK food supply chains. The government should:

- **Continue to reduce dependence on fossil fuels** throughout the whole food supply chain, in favour of electrification, powered by domestic renewable energy sources, on farms and throughout the food processing, transport, wholesale and retail industries. The future of the country's food security depends on breaking the link between food production costs and volatile international energy prices.
- **Improve transparency of food price inflation** by establishing a UK equivalent of the EU's Agri-Food Chain Observatory. By illuminating

costs, margins and how shocks are transmitted along supply chains, this would focus policy on the causes of inflation.

- **Invest more in agri-environment schemes** (ie ELMs) designed to support farms to meet nature, climate and water quality goals, without reducing the level of self sufficiency, as well as implementing supply chain regulations that help to cut costly pollution at its source.

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and Lydia Collas, head of natural environment, lcollas@green-alliance.org.uk

Endnotes

[1] Office for National Statistics (ONS), 'Consumer Prices Index (CPI): annual rate 01.1 food'
[2] Food and Drink Federation, September 2026, 'UK food inflation forecast 2026-2027'
[3] The basket includes six eggs, two pints of milk, a loaf of bread, 300g cheddar, one medium chicken, six pork sausages (354g), four apples (340g), 1kg potatoes, carrots (500g), lettuce (head), onions (300g), 500g sugar, and cabbage (500g).
[4] We used the Retail Price Index's (RPI's) absolute price data to assign values to each of the items in the retail basket. This also involved projecting these values to May 2026 using RPI indices, as price data only ran to January 2025. We then calculated the matching farmgate basket using a range of commodity and market prices from various sources. Where these did not run to May 2026, we extended them using matching indices from the ONS Agricultural Prices Index (API). As inputs costs do not break down by items supplied at retailers, we used the Institute for Grocery Distribution's (IGD) January 2025 production/growing cost for the basket it used in its *Where does your food pound go?* report. We then projected this forward and backwards using the API's inputs index.
[5] Ibid
[6] Ibid
[7] Ibid
[8] Ibid
[9] Green Alliance analysis of the Department for Environment, Food and Rural Affairs' (Defra's) 'Agricultural price indices' (API).
[10] Ibid
[11] Note: this differs from the basket we built. This is because our basket is for a specific selection of goods, while the API considers a wider range of products bought and sold by farms.
[12] Green Alliance analysis of Defra's API
[13] Ibid
[14] Ibid
[15] Ibid
[16] K Kissane, 2026, 'The rising tide: global beef prices set record highs as supply constraints bite', Irish Farm Accounts Co-operative Society

[17] J Bentley-McKune, 2026, 'Climate extremes in the UK are driving up lamb prices for consumers', Energy and Climate Intelligence Unit (ECIU)
[18] Green Alliance analysis of: ONS, 2023, input-output analytical tables
[19] NFU, 2026, 'AHDB to publish weekly fertiliser price reports following NFU calls for greater transparency'
[20] Agricultural Industries Confederation, 2026, 'Fertiliser consumption in the UK (annual summary)'
[21] Element Energy, 2022, *Battery electric HGV adoption in the UK: barriers and opportunities*
[22] Green Alliance analysis of: ONS, 2023, input-output analytical tables. Percentage refers to coke and refined petroleum products; industrial gases, inorganics and fertilisers (all inorganic chemicals); electricity; and gas; as a proportion of total intermediate use at purchasers prices.
[23] Climate Change Committee, 2025, *The seventh carbon budget*, figure 7.5.8
[24] G James, A Jamal and N Davies, 2025, briefing: 'The negligible inflationary impact of an HGV zero emission mandate', Green Alliance
[25] Yields calculated based on production quantities from: Eurostat, 'Cereals for the production of grain (including seed) by area, production and humidity: Harvested production in EU standard humidity – thousand tonnes'; and areas reported by: Eurostat, 'Crop production in EU standard humidity: Cereals for the production of grain (including seed); area (sown/harvested/production – thousand hectares'.
[26] Countries included in the analysis are Belgium, Denmark, Germany, Ireland, France and the Netherlands. Data obtained from Eurostat 'Cereals for the production of grain (including seed) by area, production and humidity: Harvested production in EU standard humidity – thousand tonnes'
[27] Defra, September 2026, 'Agricultural land use in England'
[28] Ibid
[29] Ibid
[30] *The New Statesman*, 6 April 2022, 'The UK is sleepwalking into a food crisis'
[31] Defra, September 2026, op cit
[32] Defra, 2026, 'Farm accounts in England data sets'
[33] Defra, *National security assessment on global ecosystems*
[34] Green Alliance analysis of: AHDB, 'Corn returns' and World Bank wheat commodity prices. Adjusted to sterling using the ONS average USD to GBP exchange rate.
[35] Ibid
[36] Defra, 2022, 2024, 2026, 'Farm accounts in England data sets'
[37] Ibid. Adjusted for inflation using the ONS, September 2026, 'Gross domestic product at market prices: implied deflator: seasonally adjusted'
[38] Ibid
[39] ECIU, 2026, 'England cereals and oilseeds harvests ranked'
[40] See endnote 38
[41] Ibid
[42] Defra, 2016, 'Water quality and agriculture: impact assessment'
[43] Ibid
[44] Defra's impact assessment estimates a 0.9 per cent reduction in nitrogen pollution and 4.6 per cent reduction in phosphate pollution, at a cost of £96 million. Across the 8.9 million hectares (ha) of farmed land in England, assuming average surplus

nitrogen of 86kg per ha and surplus phosphate of 2.3kg per ha across this farmland, we estimated mitigation to cost £7 per kg of nitrogen and £51 per kg of phosphate.
[45] Stour Environmental Credits Ltd, 'Buying nutrient credits' (last accessed 20 October 2026)
[46] Winchester Coty Council, 'Nutrient neutrality - what developers need to know', (last accessed 20 October 2026)
[47] Defra, 2025, 'Environmental Improvement Plan' (EIP) 2025
[48]E Carnell et al, 2021, 'Analysis of the impact to ammonia emissions of covers on slurry/digestate stores near nitrogen-sensitive protected habitats in England'
[49] We assumed covering an uncrusted slurry store would reduce by 80 per cent the 4.4g of ammonia-nitrogen emitted per square metre each day. Assuming an average depth of slurry store of three metres, and adjusting for the atomic weight of nitrogen vs ammonia, this translates to reduction of 0.52kg ammonia per cubic metre covered per year. Assuming Defra's figure that each tonne of ammonia causes £9,900 of damage, this translates to avoidance of damage worth £5.15 per cubic metre covered.
[50] Covering a crusted slurry store reduces emissions by 50 per cent. The remainder of this calculation follows the method described for uncrusted stores.
[51] We assumed that 83 per cent of the 25.8 million cubic metres of slurry produced in England annually is uncovered, and of that 45 per cent is crusted
[52] Calculated using food prices at Asda on 14 October 2026.