

Toxic trade-off: The cost of factory farming on the UK's housing future

September 2024

Key findings:

A third of the areas in England ranked highest for projected housing demand¹ are in regions too polluted to build homes.

Norfolk, Shropshire, Herefordshire, Dorset and Wiltshire are some of the areas in nutrient neutrality zones in England most affected by pollution from intensive livestock units.

Intensive pig and poultry farming in 2023 produced 18% more nitrates per year than in 2016. This equates to 27,000 additional tonnes of nitrates every year. Assuming intensive livestock farming continues to expand at its current rate, annual nitrate production could be up by 32% on 2016 levels by 2028.

Planning policy reform in 2024 must prevent further expansion of intensive livestock units in polluted catchments, or housebuilding and nature recovery targets are at risk.

Introduction

There are 74 areas in England that are too polluted to allow housebuilding. A key source of nutrient pollution in these areas is waste from intensive livestock units (ILUs), specifically from manure and slurry. The nutrient pollution crisis is impacting the Government's ability to meet its target to build 1.5 million new homes.

This briefing shows the relationship between ILUs and areas designated as too polluted for housebuilding. Nutrient pollution poses significant multiple challenges, to statutory nutrient reduction obligations, nature recovery targets and housing growth. As the intensive livestock industry is a major contributor to nutrient pollution, it must be regulated through targeted policy interventions. Nutrient reduction, not just offsetting, is necessary.

¹ Defined as more than 10% projected household growth over the next four years, according to the office for national statistics.

We recommend that the expansion of ILUs in polluted catchments is halted and that this happens at the national level via the planning policy reform happening in Autumn 2024. We also recommend that farmers are offered viable routes to transition out of the industry and that the forthcoming Land Use Strategy ensures that farming policy prioritises food security. Finally, we recommend that funding must be restored to regulatory agencies.

Relationship between intensive livestock farming and polluted areas

This briefing is based on new research by Compassion in World Farming, Friends of the Earth and Sustain, which reveals for the first time the correlation between waste from ILUs and nutrient neutrality zones, where it is too polluted for housebuilding to occur. Our analysis shows that many of the areas in which housing demand is highest – and therefore housebuilding most needed – are in places too polluted to build new homes. The continued expansion of ILUs in these regions poses a threat to housing development, as well as worsening environmental and human health outcomes and risks declining animal welfare.

Map 1²³⁴⁵⁶ shows the location of Local Planning Authorities in England in ‘nutrient neutrality’ zones and the spread of nutrients from ILUs. The dark shaded areas show where pollution from ILUs is greatest. Nutrient neutrality zones are areas that are experiencing significant damage from nutrient pollution and have protected nature sites⁷.

Map 2⁸⁹¹⁰¹¹¹² shows the areas in England of highest projected population growth, in which the number of households is predicted to increase by more than 10% by 2028, according to the Office for National Statistics. The coloured shading on these maps

² ADAS and North Wyke Research. 2008. ‘The National Inventory and Map of Livestock Manure Loadings to Agricultural Land: MANURES-GIS’. WQ0103. DEFRA. <https://www.data.gov.uk/dataset/6f966e56-2fac-42a9-9be9-c1529d4e5229/estimates-of-manure-volumes-by-livestock-type-and-land-use-for-enland-and-wales>.

³ CIWF. 2024. ‘Factory Farming Map’. <https://www.ciwf.org.uk/our-campaigns/factory-farming-map/>.

⁴ Environment Agency. 2024. ‘Environmental Permitting Regulations – Installations’. Public Register. England. <https://environment.data.gov.uk/public-register/view/search-industrial-installations>.

⁵ Lehner, B., Grill G. (2013): Global river hydrography and network routing: baseline data and new approaches to study the world’s large river systems. *Hydrological Processes*, 27(15): 2171–2186. Data is available at www.hydrosheds.org

⁶ Messenger, M.L., Lehner, B., Grill, G., Nedeva, I., Schmitt, O. (2016): Estimating the volume and age of water stored in global lakes using a geo-statistical approach. *Nature Communications*: 13603. doi: 10.1038/ncomms13603. Data is available at www.hydrosheds.org

⁷ Planning Advisory Services, Nutrient Neutrality FAQs <https://www.local.gov.uk/pas/topics/environment/nutrient-neutrality-and-planning-system/faqs>

⁸ ONS. 2020a. ‘Household Projections for England: 2018-Based’. Census 2021. <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/householdprojectionsforengland/2018based>.

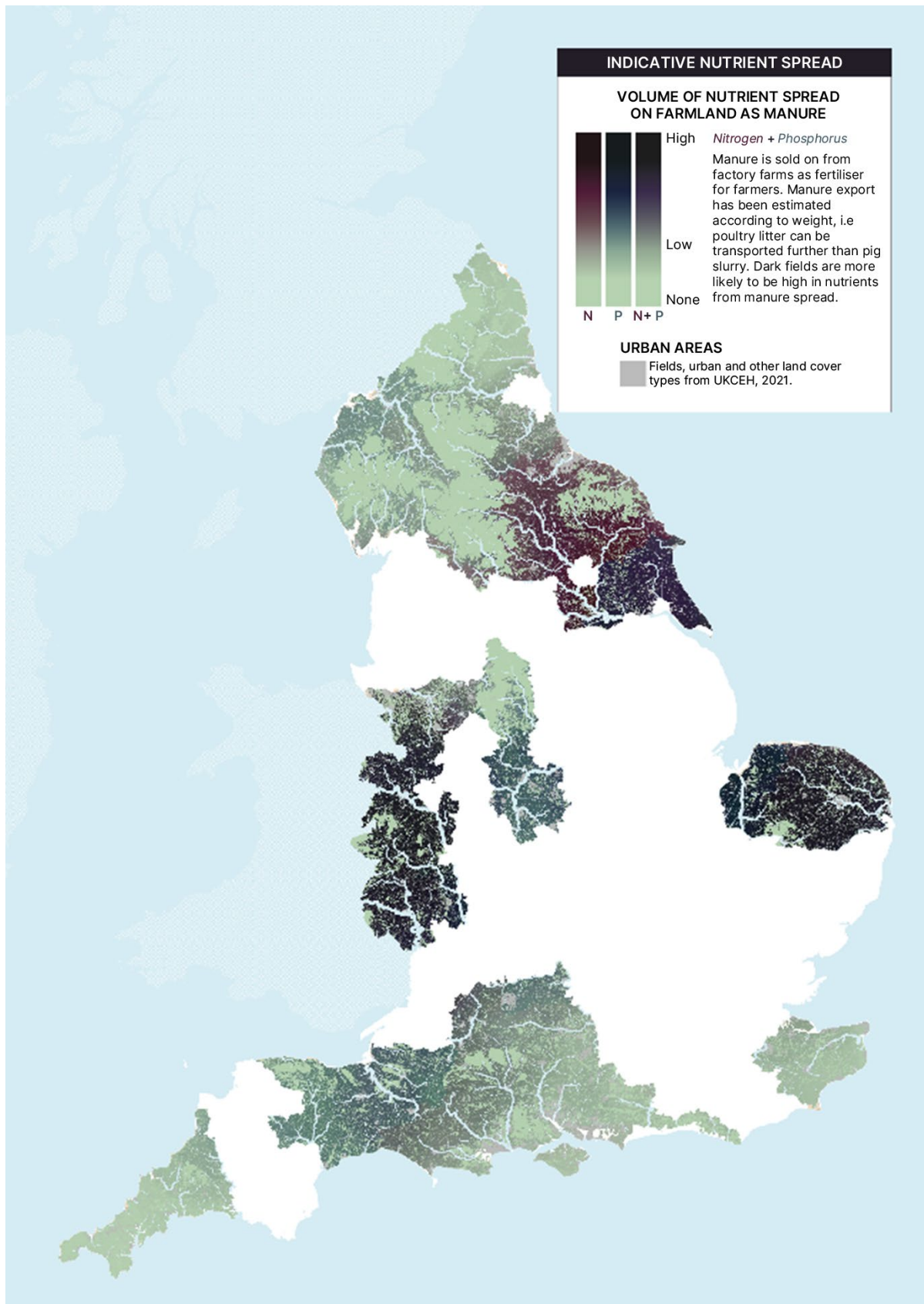
⁹ ONS. 2023c. ‘Local Planning Authorities (April 2023) Boundaries UK BFC’. Open Geography Portal. https://geoportal.statistics.gov.uk/datasets/992de91f065148e786870aec2359d427_0/explore

¹⁰ ONS (2017). ‘Local Authority Districts (December 2017) Boundaries GB BSC’. Open Geography Portal. https://geoportal.statistics.gov.uk/datasets/3b4ffb3badb6480aa804215d9286360a_0/explore?location=54.961283%2C-3.265930%2C5.99.

¹¹ Small, Steph. 2023. ‘Nutrient Neutrality – Phosphate Offsetting October 2023’. Knight Frank. <https://www.knightfrank.com/research/article/2023-10-05-nutrient-neutrality-phosphate-offsetting-october-2023>.

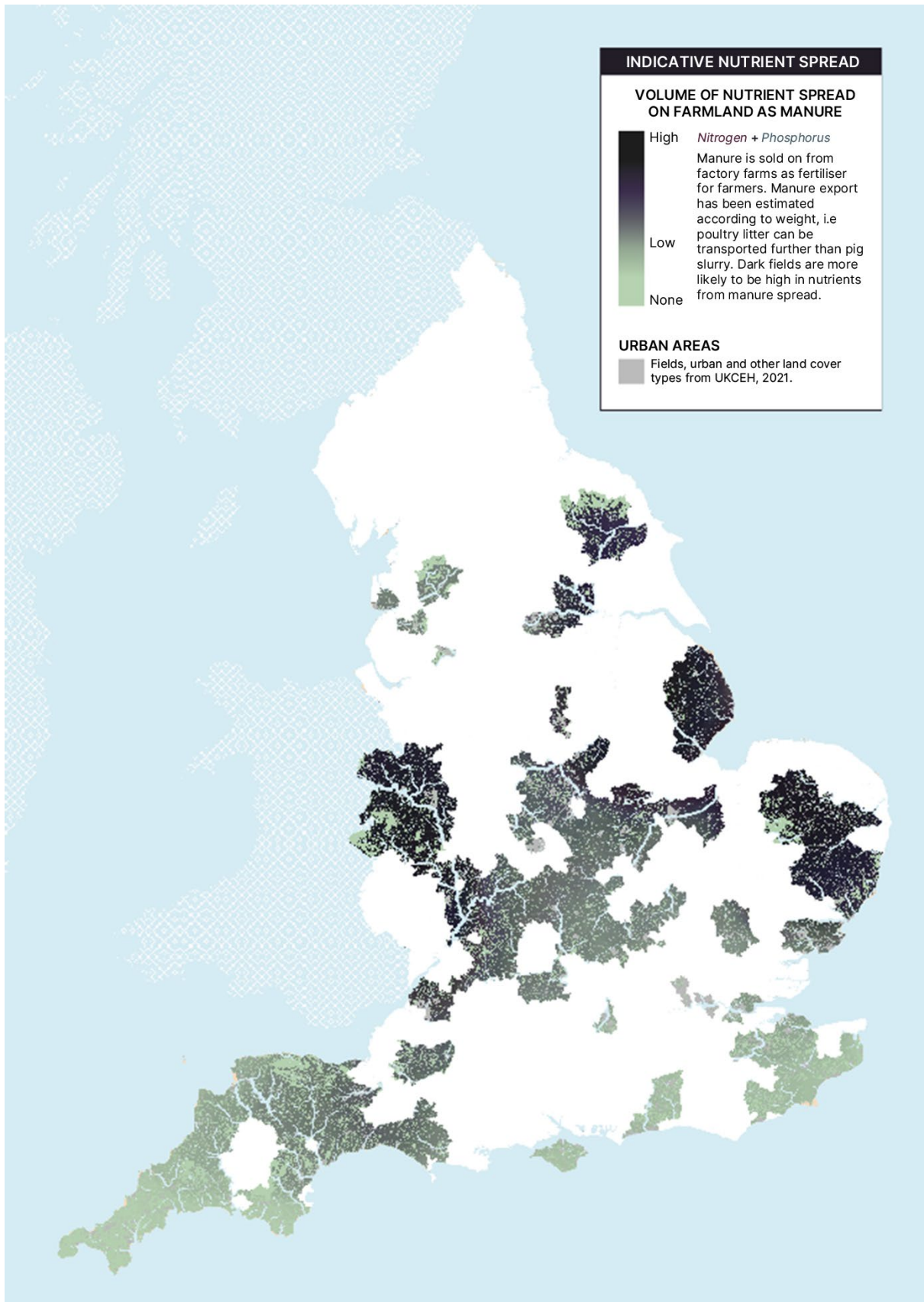
¹² UKCEH. 2021. ‘Land Cover Map 2021’. Environmental Information Data Centre. <https://catalogue.ceh.ac.uk/documents/017313c6-954b-4343-8784-3d61aa6e44da>.

represents the spread of nitrate and phosphate pollution from ILUs, with the darkest areas showing where nutrient pollution from ILUs is greatest.



Map 1 ILU pollution and nutrient neutrality zones

Credit: Materiality/Friends of the Earth/Sustain/CIWF



Map 2 ILU pollution and high projected housing growth
Credit: Materiality/Friends of the Earth/Sustain/CIWF

Intensive livestock farming is a leading cause of nutrient pollution

Estimates suggest agriculture accounts for between 61-70% of total nitrogen in river water in England and Wales¹³¹⁴. A major source of this nitrate pollution within agriculture is intensive livestock production¹⁵. This intensive method of raising animals is also the single biggest cause of animal cruelty globally. The number of large intensive farms – i.e. those that require an environmental permit to rear pigs and poultry and farms that keep cattle under intensive conditions – has increased by 12% between 2016 and 2023, and the number of the largest US-style megafarms for pigs and poultry grew by 20%¹⁶. As a result, intensive pig and poultry farming produced 18% more nitrates per year in 2023 than in 2016. This equates to 27,000 additional tonnes of nitrates annually. Assuming intensive livestock farming continues to expand at its current rate, annual nitrate production could be up 32% on 2016 levels by 2028. Much of this pollution will likely occur in areas identified as hotspots for intensive livestock farming¹⁷.

Nutrient pollution is preventing housebuilding

Nutrient pollution is preventing the construction of new homes in 74 local planning authority areas in England¹⁸. In these 'nutrient neutrality' zones, Natural England has issued guidance aiming to protect threatened habitats from further damage. The guidance states that no further building works should take place if the development would add any further pollution, unless mitigation measures are put in place. It is estimated that up to 100,000¹⁹ homes have been affected by these restrictions, potentially jeopardising the Government's target of building 1.5 million homes²⁰. It is estimated that failure to address this issue could result in an £18 billion economic loss over the next six years²¹.

This research has identified a number of England's nutrient neutrality zones in which the spread of manure and slurry from ILUs is a significant source of pollution (see map 1). The most acute pollution from ILUs in nutrient neutrality zones is in Norfolk,

¹³ DEFRA, 2022, Accredited official statistics, Chapter 11: Environment, <https://www.gov.uk/government/statistics/agriculture-in-the-united-kingdom-2021/chapter-11-environment>

¹⁴ Environment Agency (2019) 2021 River Basin Management Plan, https://consult.environment-agency.gov.uk/+/+preview++/environment-and-business/challenges-and-choices/user_uploads/nitrates-pressure-rbmp-2021.pdf

¹⁵ Sustain (2023) Alarming levels of industrial animal waste poisoning UK rivers, <https://www.sustainweb.org/news/jun23-industrial-agriculture-toxic-waste/>

¹⁶ Compassion in World Farming (2024) Shocking rise in US-style megafarms across the UK, <https://www.ciwf.org.uk/media/press-releases-statements/2024/02/shocking-rise-in-us-style-megafarms-across-the-uk-revealed-in-new-data>

¹⁷ See: <https://www.foodfortheplanet.org.uk/stink-or-swim/#Pollution%20maps>

¹⁸ House of Commons Library (2023) Nutrient neutrality and housing development, <https://commonslibrary.parliament.uk/research-briefings/cbp-9850/>

¹⁹ House of Commons Library (2023) Nutrient neutrality and housing development, <https://researchbriefings.files.parliament.uk/documents/CBP-9850/CBP-9850.pdf>

²⁰ The Labour Party (2024), Kickstart economic growth, <https://labour.org.uk/change/kickstart-economic-growth/#get-britain-building-again>

²¹ DLUHC and Defra (2023) 100,000 more homes to be built via reform of defective EU laws, <https://www.gov.uk/government/news/100000-more-homes-to-be-built-via-reform-of-defective-eu-laws>

Shropshire, Herefordshire, Dorset and Wiltshire. In these areas it is deemed most critical that pollution from intensive livestock units is halted.

The government has proposed new methods for determining housing targets for regions of England. Under such a system North Yorkshire and East Riding of Yorkshire would have their housing targets increased by 211% and 156% respectively²². Both are in nutrient neutrality zones and this research has identified that both have very high levels of pollution from ILUs. Preventing the further spread of intensive livestock agriculture and reducing pollution should also be a priority in these areas.

Pollution reduction, not offsetting, is needed

The Government's current strategy is to allow construction companies to build, but leave the homes empty until projected nutrient emissions are offset, with construction companies funding the creation of new nutrient sinks or paying farmers to halt nutrient intensive activities²³. However, if nutrient pollution from ILUs continues to grow as rapidly as it has over the last six years, then offsetting becomes more complex, costly and unviable as a solution.

For example, Norfolk councils and Anglian Water have paid a farmer £1.5 million to keep 2,000 pigs off the land, unlocking 5,000 new homes across the county²⁴. However, nearby, an application for a megafarm with the capacity to rear over one million chickens and 14,000 pigs is being considered. If successful, this development threatens to add 1865 kg of nitrogen pollution to the local landscape per day. The company that has submitted the application has not submitted a strategy for managing nutrient waste produced on-site, as of summer 2023²⁵. As such, pollution in local nutrient neutrality areas may increase.

Pollution reduction, not just offsetting, is necessary not just to unlock housebuilding but to fulfil the UK's commitment to halve nitrogen pollution, in accordance with global biodiversity pledges²⁶, and to reduce nitrogen and phosphorus pollution from agriculture by at least 40% by 2038, as per targets in the Environment Act 2021²⁷.

²² LGC (2024) Mapped: Housing targets for each council under proposed method <https://www.lgcplus.com/services/regeneration-and-planning/mapped-housing-targets-for-each-council-under-proposed-method-31-07-2024/>

²³ Sigma Homes, Q&A with Clare Bartlett on nitrate neutrality, <https://sigmahomesgroup.co.uk/news/qa-with-clare-bartlett-on-nitrate-neutrality>

²⁴ Pig World (2023) Public money to be paid to remove pigs from land to facilitate housing development <https://www.pig-world.co.uk/news/public-money-to-be-paid-to-remove-pigs-from-land-to-facilitate-housing-development.html>

²⁵ Lynn News (2023) Cranswick's plans for 'mega farm' between Methwold and Feltwell provoke growing row <https://www.lynnnews.co.uk/news/plans-for-mega-farm-between-two-villages-provoke-growing-r-9325901/>

²⁶ WWF (2024) UK Government May Have Broken Law On River Pollution – Watchdog Confirms, <https://www.wwf.org.uk/press-release/government-broken-law-river-pollution#:~:text=In%20line%20with%20the%20global.and%20our%20own%20public%20health.>

²⁷ Gov.uk (2021) Environment Act 2021 <https://www.legislation.gov.uk/ukpga/2021/30/contents>

Other harms caused by nutrient pollution

Nutrient pollution in the form of nitrates and phosphates decreases biodiversity, causes respiratory disease, pollutes rivers and lakes, and accelerates climate change. Excess nutrient pollution is one of the factors causing nature in the UK to be in worrying decline, and the UK is already one of the most nature-depleted countries in the world²⁸.

Whilst nutrients are essential for producing food, almost half the nitrogen fertilisers used in the UK are wasted, mostly through run-off into rivers²⁹. Soils in every region in England are in nitrogen surplus, some receive more than twice what they can absorb³⁰, and nitrates are a cause of groundwaters in England failing to achieve good status³¹. More information is available from the Sustainable Nitrogen Alliance, which is calling for the UK to establish nitrogen budgets at a catchment and national level³².

The regulation of nutrient pollution from ILUs has been severely hampered by sustained, deep funding cuts at the Environment Agency (EA), which has led to the loss of almost 9,000 staff since 2016³³. These cuts mean that the Environment Agency was only able to visit 4% of farms in England between 2022-2023³⁴. The lack of coverage has been compounded by slower response times, with the EA missing 75% of its response targets for serious pollution events³⁵.

Systemic failures in farming regulation are creating the conditions for frequent regulatory violations to occur. In Devon, nine out of ten farms inspected between 2016 and 2020 violated environmental regulations, with two-thirds causing river pollution³⁶.

Not good business

Just 10 large agribusinesses control the majority of the intensive livestock industry in the UK; determining input and operating costs for farmers that

²⁸ Natural England (2023) State of Nature, <https://naturalengland.blog.gov.uk/2023/09/29/state-of-nature/>

²⁹ WWF (2022) Nitrogen: Finding the Balance, https://www.wwf.org.uk/sites/default/files/2022-02/NITROGEN_REPORT_summary_final.pdf

³⁰ DEFRA, 2020, [Soil nutrient balances England regions. 2020 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/434822/soil-nutrient-balances-england-regions-2020-2021.pdf)

³¹ Environment Agency (2019) 2021 River Basin Management Plan, https://consult.environment-agency.gov.uk/++preview++/environment-and-business/challenges-and-choices/user_uploads/nitrates-pressure-rbmp-2021.pdf

³² The Sustainable Nitrogen Alliance, <https://www.nitrogen.org.uk/the-solutions>

³³ ENDS Report (2024) 'Slashed to the bone': Almost 9,000 staff left the EA in the last eight years <https://www.endsreport.com/article/1866822/slashed-bone-almost-9000-staff-left-ea-last-eight-years>

³⁴ The Standard (2023) Watchdog accused of failing to hold Environment Agency to account <https://www.standard.co.uk/news/environment/environment-agency-clientearth-wwf-watchdog-defra-b1128304.html>

³⁵ The Times (2024) Environment Agency late to most serious pollution incidents, <https://www.thetimes.com/uk/environment/article/environment-agency-late-to-most-serious-pollution-incident-clean-it-up-6sklqxxzd>

³⁶ The Guardian (2022) Two-thirds of cattle farms in north Devon cause river pollution, <https://www.theguardian.com/environment/2022/oct/25/two-thirds-of-cattle-farms-in-north-devon-cause-river-pollution>

manage units. Research by Sustain and Friends of the Earth found that these companies do not have adequate policies to manage waste³⁷.

ILUs typically create just 1-2 jobs per development, cost the taxpayer tens of millions in subsidies³⁸ and compensation³⁹ and have been found to harm other rural business sectors⁴⁰. Whilst profits for many UK farmers are falling, agribusinesses' profits are growing⁴¹.

Risks to food security

The House of Commons Environmental Audit Committee (EAC) has identified intensive livestock production as a risk to food security in the context of climate change⁴².

Animal feed and rearing uses 85% of UK farmland while providing only a third of the nation's calories and under half its protein. Grain for livestock feed uses 40% of the UK's prime arable land⁴³. Intensive livestock production – with its reliance on imported grain and fossil fuels – puts farmers and food supplies at risk from global price shocks and supply interruption.

The EAC recommends improving domestic self-sufficiency by producing more crops to be eaten directly, including more vegetables, pulses and legumes. Noting the recommendations of the Climate Change Committee to reduce meat and dairy consumption⁴⁴, financial and practical support is needed for farmers to transition to such systems.

Recommendations

In order for the UK to achieve its housing aims and its nature recovery and climate targets, nutrient pollution from agriculture must be reduced at source. To do so, the UK must transition to a more sustainable food production approach, centred on equity and justice, including:

1. Government, ministers and local authorities must work to halt any further expansion of intensive livestock in polluted catchments i.e. those containing protected sites in unfavourable condition, or catchments in which rivers are not in good ecological or chemical status. For example, national government should remove the presumption in the National Planning Policy Framework which supports the growth

³⁷ Sustain (2024) Stink or Swim, <https://www.sustainweb.org/reports/apr24-stink-or-swim-briefing/>

³⁸ Bureau of Investigative Journalism (2018) Intensive farmers get £70M in government subsidies in two years, <https://www.thebureauinvestigates.com/stories/2018-12-28/intensive-farms-get-70m-subsidies/>

³⁹ The Guardian (2022) Avian flu has led to the killing of 140m farmed birds since last October, <https://www.theguardian.com/environment/2022/dec/09/avian-flu-has-led-to-the-killing-of-140m-farmed-birds-since-last-october>

⁴⁰ Journal of Sustainable Tourism (2024) Contested rural landscapes: contemporary entanglements of tourism and farming, <https://www.tandfonline.com/eprint/ST6VPGXZYCUEKWM7BS9C/full?target=10.1080/09669582.2022.2134399>

⁴¹ Unite (2023) Profiteering across the economy it's systemic, <https://www.unitetheunion.org/media/5442/profiteering-across-the-economy-march-2023.pdf>

⁴² EAC (2023) Environmental change and food security, <https://committees.parliament.uk/publications/42481/documents/211176/default/>

⁴³ WWF (2022) Transform UK farmland to boost food resilience and tackle nature crisis, <https://www.wwf.org.uk/press-release/transform-uk-farmland-boost-food-resilience-tackle-nature-crisis>

⁴⁴ Climate Change Committee (2022) Government's Food Strategy 'a missed opportunity' for the climate, <https://www.theccc.org.uk/2022/06/13/governments-food-strategy-a-missed-opportunity-for-the-climate/>

and expansion of “all types of business in rural areas”. At the local level, authorities can implement local plans or create a supplementary planning document that requires more stringency from new applications to develop ILUs.

2. Planning policy reform: The Ministry of Housing, Communities and Local Government should adopt the recommendations of the Environmental Audit Committee in the new National Planning Policy Framework for England – currently undergoing public consultation:

“There should be a presumption against granting planning permission for new intensive livestock units in catchments where the proposed development would exceed the catchment’s nutrient budget.”

The presumption should apply in all catchments where nitrogen budgets are exceeded, i.e. even where developers present mitigation or pollution reduction plans.

Planning policy must ensure that the planning process supports an agro-ecological food system rather than intensive livestock.

Planning and environmental permitting rules must be reformed to ensure that smaller operations and intensive dairy units are covered by planning permission and an environmental permit, and thus have better oversight, as recommended by Wildlife and Countryside Link⁴⁵. Current thresholds—40,000 poultry, 2,000 pigs, or 750 sows per facility—encourage smaller, unregulated operations.

3. DEFRA must ensure that equitable, just routes are created for farmers and workers to transition out of intensive livestock farming and into fairer and more sustainable systems, which create better rural livelihoods. Schemes are already underway to compensate farmers for reducing livestock numbers⁴⁶. Such schemes should support crop diversification, mixed farming systems, agroecology and nature recovery.

4. DEFRA and MPs must ensure that the forthcoming Land Use Strategy sets out how we can address the challenges of climate change, food security and nature recovery where there is competition for land in the UK, so that planning and environmental needs can be met.

5. DEFRA and the Treasury must ensure that nutrient pollution is properly regulated by reversing damaging funding cuts to the Environment Agency. Without an effective regulator pre-existing and future regulation of nutrient pollution will be compromised and nutrients will continue to flow into the environment.

⁴⁵ Link (2024) Permitting Reform: Reducing Environmental Damage from Intensive Livestock Farms, https://wcl.org.uk/docs/Link_Briefing_Permitting_June_2024.pdf

⁴⁶ Pig World (2023) Public money to be paid to remove pigs from land to facilitate housing development, <https://www.pig-world.co.uk/news/public-money-to-be-paid-to-remove-pigs-from-land-to-facilitate-housing-development.html>

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