

Quantifying the Environmental Risks from Pig & Poultry Production in the UK

A Briefing for Policy Makers



Briefing Summary

Research on the environmental impacts of the UK pig and poultry industry was commissioned by The Wildlife Trusts in response to the considerable risks for nature, such as river pollution and land use, emerging from the highly concentrated production associated with this sector – a relatively new development in the UK food system.

This evidence-based review confirms that the risks relate to the very large number of animals and their location and suggests the pressing need for better regulation and new policies to address these issues.

The research reveals highly concerning levels of environmental harm and potential harm related to land use, polluting nutrient levels (such as phosphorous from excreta), soil damage, pesticide use, and land use associated with feed production. It also details how much of the UK herd is not covered by permitting regulations aimed at controlling local pollution.

As the Government develops new strategies on food, land, farm profitability, a 25-Year Farming Roadmap, a Water White Paper and a revised Environmental Improvement Plan (which will include delivery pathways for meeting nature targets including on agricultural water pollution), we make the following recommendations, which should be adopted across these plans:

- 1.** Reform existing permitting regimes to account for the wider environmental impacts associated with feed production and off-site excreta use associated with production units.
- 2.** Introduce a requirement for pig and poultry farms to produce comprehensive nutrient management action plans clearly detailing nutrient management budgets on farm, including end destination and use for excreta transported off-site to ensure sustainable application.
- 3.** A moratorium on new units, and the expansion of existing units, in the catchments of waterbodies failing good ecological status, or of Protected Areas at risk of failing their conservation objectives, as a result of nutrient pollution.
- 4.** Commission a new cross-departmental Government taskforce to identify how the impacts associated with the geographic concentration of pig and poultry production in the UK can be best managed to minimise environmental impacts.
- 5.** Integrate detailed analysis of the land take for crops grown to feed pig and poultry units within a Land Use Framework in England.
- 6.** Ensure supply chains are regulated and incentivised to support farmers to transition to less polluting and more integrated pig and poultry system.

[The full report is available here](#)

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Key Findings of the Report

Significant Scale and Concentration of the Industry

- **The scale of pig and poultry production as a sector across the UK is huge, with significant volumes of nutrient outputs generated** – The UK produces almost 1 million tonnes of pigmeat and 2 million tonnes of poultry meat per year, breeding, growing and slaughtering in the region of 11 million pigs and 1.1 billion broilers. In addition, the UK has an egg laying flock of approximately 40 million chickens, producing approximately 12 billion eggs per year.
- **Intensive pig and poultry production is highly concentrated** – The UK has significant populations of pigs and poultry, predominantly in England, followed by Northern Ireland, Scotland and Wales. Within each country, there are regional concentrations of pigs and poultry, notably in Yorkshire, East Anglia, Armagh, Mid Ulster, Grampian and, in respect of poultry, the Welsh borders and South West England.
- **In England, most of the pig population is housed in just 5 council areas** – refer to pig population density map on next page (figure 1).
- **Poultry production is similarly concentrated, with more than half of England's chickens in just 10 council areas** – refer to poultry population density map on next page (figure 2). There are significant levels of geographic overlap, with implications for nutrient burdens in these areas.

Regulatory Gaps

- **Many pig farms fall outside of the current environmental permitting regime** – The majority of breeding sows in England, alongside significant proportions of other pig populations across the UK, fall outside current environmental permitting regulations as they fall below the minimum size threshold. This means that regulators lack a key route to managing the potential environmental impacts of these enterprises.
- **16% of poultry units in England fall outside of environmental permitting regimes** – Even where the permitting regime applies, not all producers appear to be adopting best practice in manure storage and application. The nutrient pollution issues in the River Wye catchment highlight the impacts that locally-concentrated manure applications in excess of crop need and soil capacity can bring.

Outsized Impact on Land Use

- **The hidden land take of pig and poultry production within the UK is significant** – The areas of land required to produce pig and poultry feed extend well beyond the pig and poultry unit 'footprints'. It is estimated that UK pig and poultry feed require approximately 520,000–580,000ha of wheat, equivalent to 34–38% of the UK's total wheat crop, with associated fertiliser and pesticide inputs. We calculate that the pesticide use associated with growing 580,000 ha of wheat equates to 2,621 tonnes of pesticides across 8.32 million treated hectares, of which 24.4% are fungicides (by weight). UK pig and poultry feed also includes soyabean meal, requiring land use outside the UK of an estimated 730,000ha.

Serious pollution risks associated with nutrient management

- **The pig and poultry sector outputs over 10 million m³ of excreta every year, highly concentrated within the areas farmed** – The amount of excreta resulting from pig and poultry production in the UK is in the region of 10.4 million cubic metres per year. This results in total outputs of approximately 97 million kg/yr nitrogen and 64 million kg/yr phosphate. In one single council area, North Yorkshire CC, the combined volume of excreta from pig and poultry production each year is 1.7 million m³ – enough excrement to fill 675 Olympic swimming pools each year.
- **The concentration of nutrients (phosphorous, nitrogen and potassium) within the excreta produced means that huge areas of farmland are required to effectively use them** – the land area required to maintain a phosphorus balance is very large, and given the geographic concentration of pig and poultry units, as well as the logistical challenges of transporting pig/poultry manure and slurry, there are likely to be many farms in these areas which are in significant phosphorus surplus – and by extension, a significant source of phosphate losses into the environment.

Figure 1 - Pig population density in GB, estimated from pig movements 2022-2023

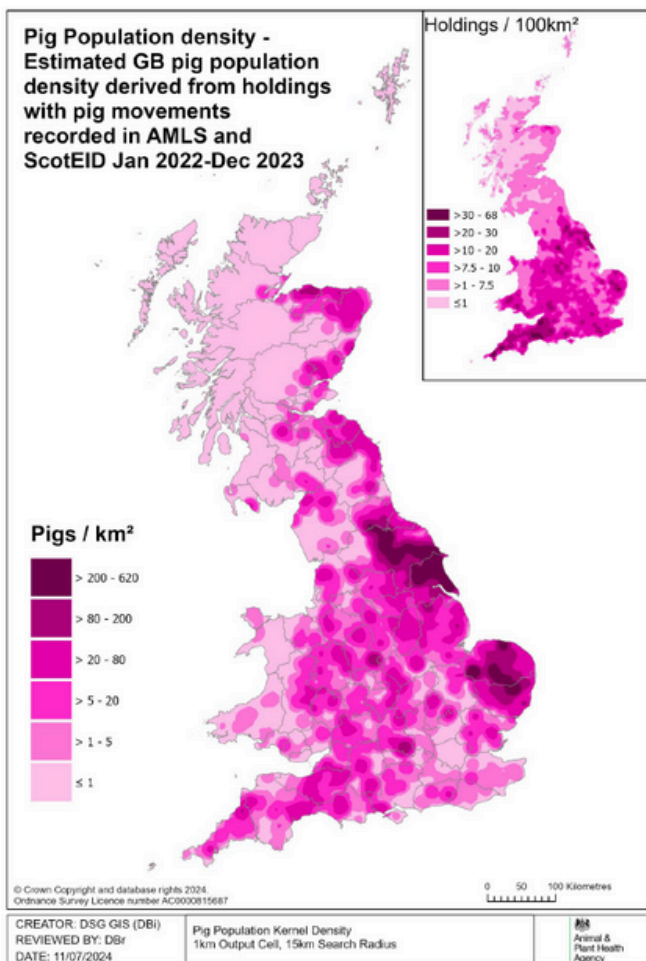
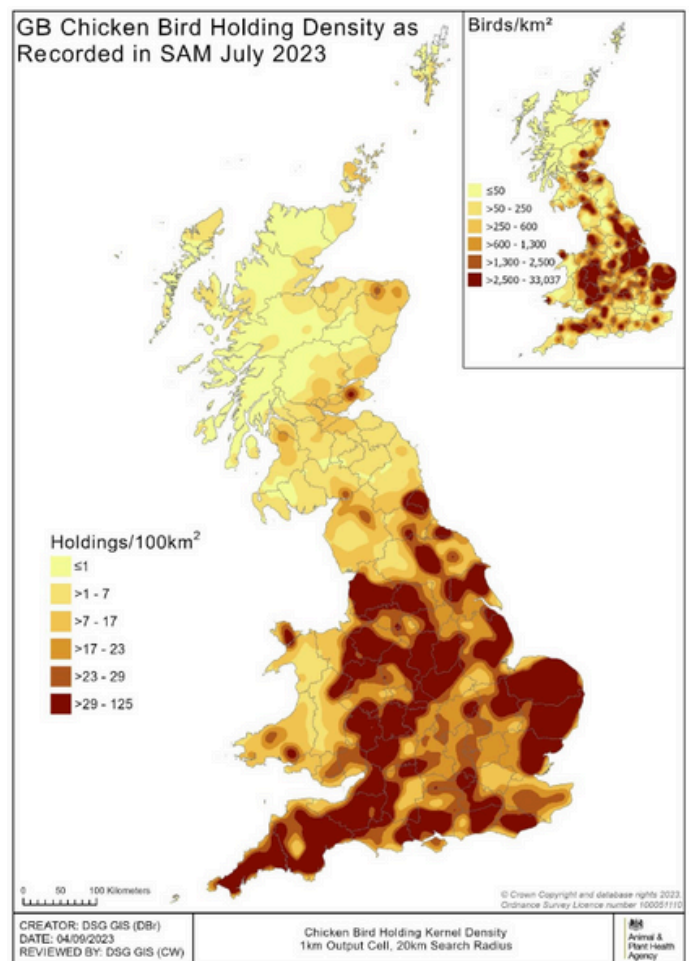


Figure 2 - GB chicken bird holding density as recorded in SAM July 2023



Analysis of the Environmental Risks and Impacts

- **The environmental impacts associated with soil erosion, fertiliser application, and pesticide use across the large areas of land associated with producing feed for pig and poultry units are likely significant** – but currently fall outside of any reporting or permitting on the environmental impacts of pig and poultry units. Focus to date has been largely on the spreading of excreta outputs from these units which, while significant, do not convey the full extent of the environmental footprint of these systems.
- **Geographic concentrations of the pig and poultry sectors in particular hotspots mean that maintaining N and P balances in soils is very difficult to manage** – this is likely going to become increasingly difficult as farms look to reduce fertiliser inputs and adopt alternative sources of soil fertility (e.g. herbal leys) and as rainfall and water availability becomes more unpredictable with climate change.
- **There is significant correlation between the location of pig and poultry units in the UK and the number of waterbodies failing Water Framework Directive (WFD) Regulation targets for Nitrogen and Phosphorous** – Given that excess Phosphorous is the most common cause of ecological water quality failures under the WFD, it is likely that the inappropriate application of fertiliser (i.e. manure) sourced from pig and poultry production remains a significant polluter of UK waterways, despite the existing environmental permitting regime.
- **The pig and poultry sector accounts for 19% of UK ammonia emissions** – while this is less than cattle, ammonia hotspots from pig and poultry are concentrated in high densities where the sheds are located, with high peaks in ammonia concentrations. The fall in ammonia emissions from pig and poultry since the Pollution Prevention and Control Act (1999) suggests the positive impact of legislative permitting in this area which should be extended.
- **There is a major opportunity cost associated with feeding the total UK pig and poultry herd** – The pressure on limited availability of land to deliver multiple objectives is significant. For instance, more land is needed for nature recovery and restoration, for more diverse food production systems, for horticulture to reduce imports and pressure on lowland peat, and for wider sustainable infrastructure. With at least 520,000ha used to grow feed for intensive pig and poultry units, this sector presents a significant barrier to scaling up action across other objectives.
- **Imported soya from environmentally vulnerable regions abroad has rightly been the focus of environmental impacts of pig and poultry feed to date** – but moving away from soya-based feedstocks risks translating issues associated with land use to the UK. We need to start to match demand with sustainable UK supply.

Recommendations for Policy

The Government has the mandate and the opportunity to address the worst impacts of pig and poultry production, and to support these sectors to move towards more sustainable futures. Elected on a manifesto that promised to 'clean up our rivers' (i), the Secretary of State for the Environment, Food and Rural Affairs pledged in July this year to reform farming support to 'maximise benefits for the environment, particularly around water quality and biodiversity' and to help farms, including pig and poultry farms, to 'transition to sustainable food production and to profitability' (ii).

The upcoming Farming Roadmap (iii), revised Environmental Improvement Plan and Water Reform Bill provide the means by which these promises can be put into action and should include the following measures to address risks from unsustainable pig and poultry production:

1. Reform existing permitting regimes – Risk assessments and environmental permitting of intensive pig and poultry units in the UK must be reformed to cover more of the units and to account for the wider environmental impacts associated with feed production and off-site excreta use associated with production units.

2. Nutrient Management Action Plans – Introduce a requirement for pig and poultry farms to produce comprehensive nutrient management action plans clearly detailing nutrient management budgets on farm, including end destination and use for excreta transported off-site to ensure sustainable application. This is critical to provide the necessary transparency and accountability for the movement of nutrients through the wider pig and poultry industrial system, and to account for associated environmental risks.

3. Moratorium on new units in high-risk areas – Current rules for nutrient neutrality prevent the development of new pig and poultry units in locations where water-dependent protected areas are failing their conservation objectives. However this approach only applies where sites are already failing, and lacks a forward-looking mechanism to prevent environmental harms. The controls regarding pollution to failing WFD waterbodies are weaker still. Therefore, there should be no new units, and no expansion of existing units, in the catchments of Protected Areas which are at risk of failing their conservation objectives as a result of nutrient pollution, and in catchments where WFD waters are failing nutrient standards, unless the development can be locally nutrient-neutral, and any off-site nutrient impacts are mitigated.

4. Commission a new Government Taskforce – The Government should set up a taskforce to look at how the impacts associated with the geographic concentration of pig and poultry production in the UK can be best managed to minimise environmental impacts. This taskforce should be cross-departmental, and link closely to the Good Food Cycle approach set out clearly in the Government's recently published Food Strategy (iv).

5. Integration within a Land Use Framework – Growing crops to feed pig and poultry units takes up 520,000-580,000ha of UK arable land, often within systems designed to deliver high-output, low-cost raw materials, reliant on large monocultures produced using heavily industrialised methods. Some of this land could instead be used to grow crops for direct human consumption, including more vegetables and pulses which can provide healthier, less processed food for people to eat. This could result in significant improvements in soil health, water quality, biodiversity, and greenhouse gas emissions, whilst also boosting UK food security and societal health. Consideration of the land take for crops grown to feed pig and poultry units should form an important element of the upcoming Land Use Framework in England (v) which aims to assess how land can best be used to achieve nature and climate targets.

6. Ensure supply chains are regulated and incentivised to support farmers to transition to a less polluting and more integrated pig and poultry system – Farmers currently operating in pig, poultry, and feed production will need advice, support, and resources to transition to less environmentally damaging systems. This support should include greater targeting of measures aimed at improving the water environment in developing Environmental Land Management schemes in England. Furthermore, there should be greater investment, regulation and accountability throughout the supply chain – including supermarkets, traders, processors, and the food service industry – to ensure farmers can be fairly rewarded for better pig and poultry systems. The developing 25-Year Farming Roadmap in England should look to embed policies and regulation to support this.

[i] <https://labour.org.uk/wp-content/uploads/2024/06/Labour-Party-manifesto-2024.pdf>

[ii] <https://www.gov.uk/government/speeches/environment-secretary-steve-reed-groundswell-show-speech>

[iii] <https://www.gov.uk/government/news/government-announces-reforms-to-boost-profits-for-farmers-with-a-cast-iron-commitment-to-food-production>

[iv] <https://www.gov.uk/government/publications/a-uk-government-food-strategy-for-england/a-uk-government-food-strategy-for-england-considering-the-wider-uk-food-system>

[v] <https://www.wildlifetrusts.org/blog/becky-pullinger/land-use-framework-huge-potential-must-be-delivered>