

# Why nitrogen polluters must pay

## The case for applying the *polluter pays principle* to the fertiliser and livestock industries, to support farmers and clean up our environments

Globally, the use of nitrogen in agriculture has caused such severe pollution that the 'safe operating space' threshold for nitrogen defined by the Stockholm Environment Institute in its planetary boundaries framework has been breached.<sup>1</sup>

In the UK, agriculture is the largest source of nitrogen pollution, both to our air (as ammonia and nitrous oxide), and our water (as nitrate).<sup>2</sup>

The leading causes of pollution from agriculture are the application, management, and runoff of both manure and synthetic nitrogen fertilisers (SNFs). Livestock manure generates over 40% of total nitrogen pollution – with industrial livestock contributing significantly, producing an estimated 50,000 tonnes of excreta from factory farms every day.<sup>3</sup>

While a lack of reporting by fertiliser corporations means that there is no estimate for the specific contribution of SNFs to nitrogen pollution, the UK's Department for Environment, Food & Rural Affairs (Defra) cites SNFs as a leading source of nitrous oxide emissions in soils.<sup>4</sup> Additionally, evidence submitted to the *House of Lords Environment and Climate Change Committee Inquiry into Nitrogen*, estimates that around 75% of the nitrogen in SNFs is lost to the environment through evaporation, soil erosion, and water run-off.<sup>5</sup>

### Nitrogen pollution from industrial agriculture has severe and wide-ranging impacts

In the UK, nitrogen pollution contributes to up to 43,000 premature deaths per year.<sup>6</sup> Nitrogen in our rivers – 61% of which is estimated to come from agriculture – has contributed to deteriorating water quality and declining fish populations, with only 14% of rivers in England now in good ecological health.<sup>7</sup>

In addition to the environmental and health impacts, the economic cost of nitrogen pollution is severe. The resulting biodiversity loss and eutrophication have been costed at £4.4 billion per year, while the wider cost to society of nitrogen pollution is estimated at £10.9 billion per year.<sup>8</sup>

And while fertiliser and livestock corporations profit, the financial cost of excess nitrogen is being borne by farmers. Wasted nitrogen from SNFs has been valued at £397 million, which costs UK farmers approximately £21 - £52 per hectare, per year.<sup>9</sup>

### Fertiliser corporations are profiting on pollution

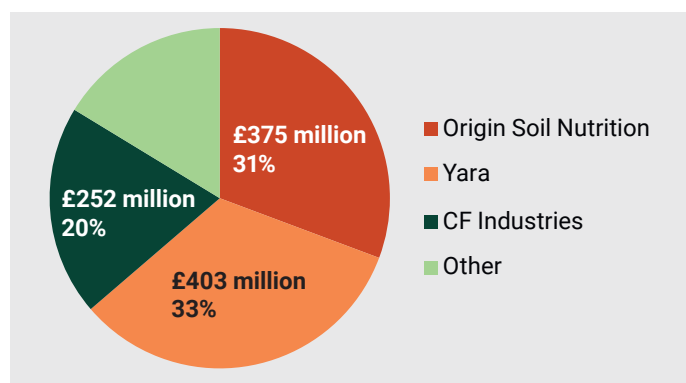
In the UK, three companies dominate the SNF market: Yara, CF Industries and Origin Soil Nutrition. Foodrise commissioned Profundo to undertake new research to estimate the revenue and profit of these big three, motivated by the troubling contrast between high corporate earnings and the environmental and social harm caused by SNFs.

The research found that between 2015-2023, these companies controlled 65-87% of the market and made an estimated £1 billion in revenue, and £790 million in net profits, from SNFs.<sup>10</sup>

**Figure 1:** Logos for the three biggest companies supplying SNFs to the UK



**Figure 2:** Market share and revenue from SNF products by the three biggest companies supplying the UK in 2023



The average nitrogen use efficiency (NUE) rate in the UK is around 55%, which is the total nitrogen absorbed by the plant, meaning that 45% is unused and enters the environment as pollution.<sup>11</sup> Therefore, an estimated £355 million of net profit from these three corporations provided no agricultural benefit and is instead contributing to severe and widespread environmental, public health and economic damage.

The high concentration and market hegemony of a trio of players reduces the incentive and opportunities for exploring more sustainable alternative practices.

The figures in this research are indicative rather than exact, given the absence of product-specific sales and profit data from fertiliser companies. However, this doesn't detract from the main message: a small group of companies have captured very large revenues and profits from SNF sales in the UK, of which a large proportion is directly contributing to pollution.

## The *polluter pays* principle redistributes the cost and incentivises change

The UK government is committed to the *polluter pays* principle, which sets out that 'the costs of pollution should be borne by those causing it'.<sup>12</sup>

Upon assessment of the causes and consequences of nitrogen pollution from the industrial agriculture sector, Foodrise therefore proposes that both industrial livestock and synthetic nitrogen fertiliser corporations pay into a **Nitrogen Pollution Remediation and Transition Fund for Agriculture**.

Companies would contribute to this Fund proportionately to their attributable nitrogen footprint. This means that SNF manufacturers and importers would contribute primarily according to the quantity of synthetic nitrogen they place on the UK market, while livestock companies would contribute according to the nitrogen associated with their livestock production and supply chains. Contributions can be weighted according to the environmental risk and demonstrated nitrogen-loss characteristics of different production systems.

This creates a strong incentive for corporations to reduce – rather than continuing to increase – the production of SNFs, and to transition to sustainable alternatives. It would also mandate full product-level reporting of nitrogen sales by corporations.

Foodrise proposes that the revenue generated by this Fund should be split between:

- Supporting a just, managed transition for farmers to more agroecological and plant-rich farming systems.
- Assisting the clean-up of polluted sites by livestock and fertiliser companies, including river catchments.

This can be channelled via existing Defra schemes, such as the Water Restoration Fund, which supports local projects which restore and enhance the water environment, and the Sustainable Farming Incentive (SFI), which supports farmers to adopt and maintain farming practices that help produce food sustainably and protect the environment.

The case for urgent action to tackle nitrogen pollution in the UK is unequivocal, supported by ample evidence from the Sustainable Nitrogen Alliance and its members. Foodrise has been simultaneously exposing the corporations which have created the nitrogen crisis, including how they are deploying the harmful 'industry playbook' of tactics to maintain business-as-usual and protect their profits.

It is essential that we reduce fertiliser use without penalising farmers, and find ways to fund the transition fairly – hence making a case to further explore opportunities to apply the *polluter pays* principle.

Find out more about the global nitrogen fertiliser industry and its impacts here:



Find out more about the nitrogen fertiliser industry in the UK and its biggest corporate players here:



## References

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- 8 W. K. Hicks et al., *Nitrogen: Finding the Balance* (2021), <https://www.wwf.org.uk/wwf-basket/agriculture>.
- 9 Hicks et al., *Nitrogen: Finding the Balance*.
- 10 Foodrise, *Nitrogen Fertilisers in the UK*, <https://foodrise.org.uk/wp-content/uploads/2026/03/UK-Nitrogen-Profundo-Report-2026.pdf>.
- 11 Hicks et al., *Nitrogen: Finding the Balance*.
- 12 'Environmental Principles Policy Statement', GOV.UK, <https://www.gov.uk/government/publications/environmental-principles-policy-statement/environmental-principles-policy-statement>.