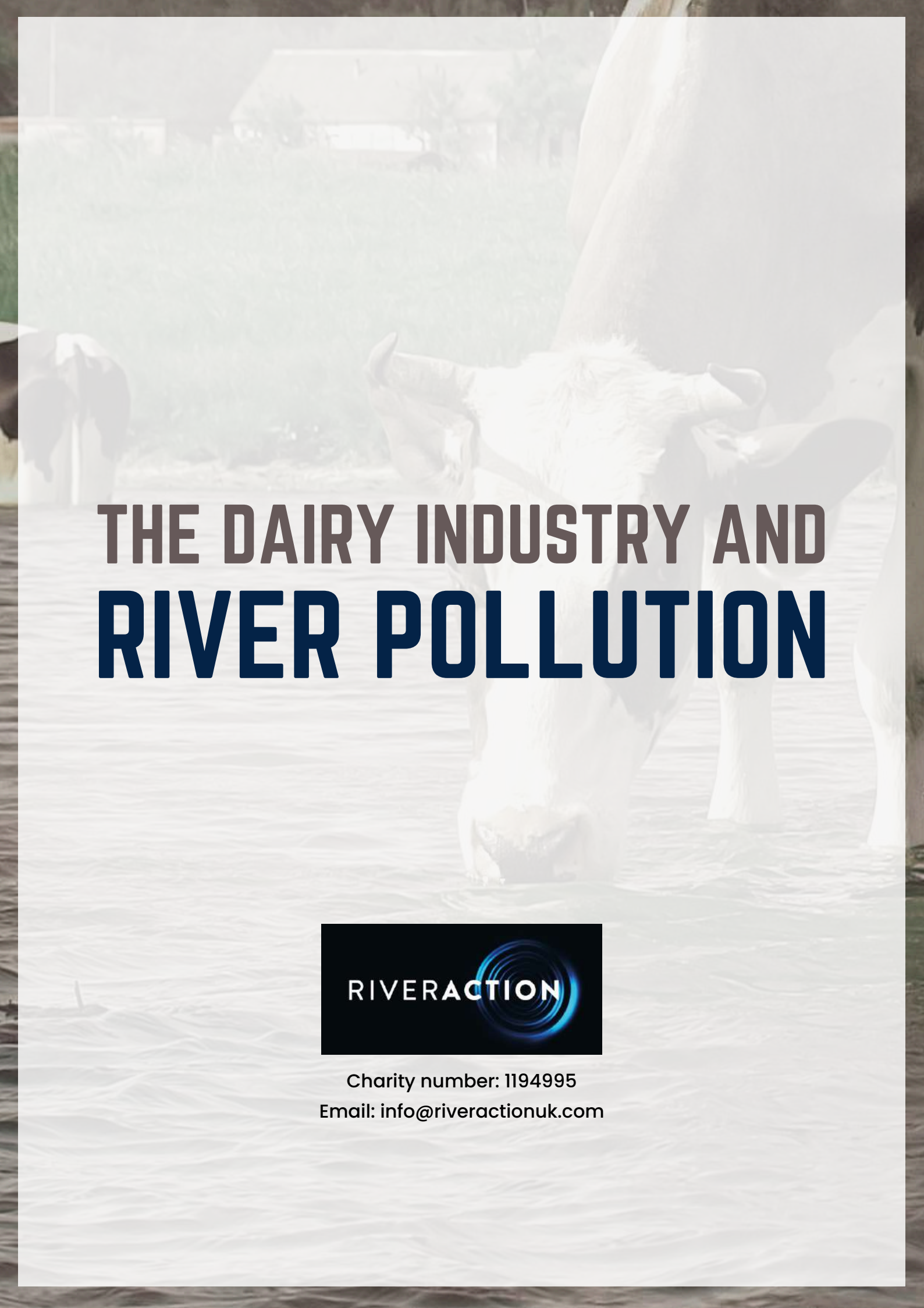

THE DAIRY INDUSTRY AND RIVER POLLUTION

RIVERACTION

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1. EXECUTIVE SUMMARY

Data uncovered by River Action reveals widespread non-compliance with environmental laws across the dairy industry, leading to one of the largest causes of UK river pollution.

Recent freedom of information requests revealed that the percentage of dairy farms that were non-compliant with environmental regulations at the time of regulatory inspections in England, Wales, Northern Ireland and Scotland were 69%, 80%, 50% and 60% respectively.

These findings were also corroborated by a number of other data sources - including a recent statement by Chair of the Environment Agency in January 2024, which showed that the dairy farms accounted for over 75% of all serious pollution incidents caused by agriculture, with agriculture being the largest single source of river pollution.

River Action believes that circumstances have aligned to create the worst possible conditions for the nation's dairy farmers to be compliant with regulations designed to prevent pollution whilst remaining economically viable. These are:

1. Recent intensification of the UK dairy industry resulting in a much higher pollution load per hectare

2. Failure of Government to adequately incentivise better environmental performance

3. Failure by Environmental Regulators to enforce laws designed to prevent river pollution

4. Inadequate environmental assurance standards in use by food retailing industry to certify dairy produce

5. Unprecedented weather conditions causing underinvested slurry management infrastructure to be overwhelmed.

Accordingly, River Action calls for the immediate implementation of critical remedial actions, including:

- The UK's largest dairy processors to introduce wider pricing incentives to reward dairy farmers for improved environmental performance

- Supermarkets groups to adopt better environmental certification scheme given the clear failure of Red Tractor to be a reliable certification of environmental performance for dairy producers

- Government to deliver on its promises to ensure the post-Brexit Environment Land Management Scheme (ELMS) farming subsidies become a major incentive for creating a systemic improvement of farming environmental performance DEFRA & its equivalent bodies in the devolved nations to a) expand & extend substantially existing grant schemes to improve slurry management infrastructure and b) encourage adoption of technological solutions to re-cycle slurry to substitute chemical fertiliser usage

- Environmental regulators to start a) fully enforcing existing anti-pollution regulations to ensure greater deterrence against the current widespread non-compliance across the industry and b) extend regulations to cover other pollution sources such as fodder maize production.

2. THE SCALE & SIGNIFICANCE OF DAIRY POLLUTION

Agricultural pollution is repeatedly cited as the largest single polluter of rivers in the UK.

Data published by the Environment Agency (EA) states that pollution from agriculture is the cause of 40% of waterbodies failing to reach Good Ecological Status (compared with 36 per cent caused by the water industry 18% caused by urban and transport pollution)[1].

The EA has also confirmed that the dairy industry is the largest single cause of agricultural pollution, accounting for the majority of all serious pollution incidents caused by agriculture. The majority of such pollution incidents relate to the mishandling of dairy slurry and silage.

Slurry spreading due to lack of infrastructure © NDPFA

To illustrate the impact arising from the slurry, silage effluent and dirty water emissions from a dairy farm, it has been calculated that a herd of 53 cows has the ability to emit the same amount of pollution as the untreated sewage from a settlement of 10,800 people.[2]

When investigating the compliance record of dairy farms with existing environmental regulations, and the Farming Rules for Water in particular, recent freedom of information notices which requested the findings of all recent farm inspections and visits conducted by the UK's environmental protection agencies confirmed the following:

1. https://publications.parliament.uk/pa/cm5802/cmselect/cmenvaud/74/summary.html

2. Moralizing the Environment, Countryside change, farming and pollution – Lowe, Clark, Seymour, Ward. UCL Press, 1997, p.6

- **In England** 69% of the 2,475 dairy farms inspected between 2020 & 2021 by the Environment Agency (EA) were in breach of environmental regulations, with over 80% of consequent improvement actions issued by the EA relating specifically to breaches of the Farming Rules for Water (regulations introduced in 2018 to specifically reduced river pollution by agriculture).[3]

- **In Wales** 80% of the 83 dairy farms inspected by Natural Resources Wales (NRW) between 2020 and 2022 were non-compliant with anti-pollution regulations.[4]

- **In Northern Ireland** 50% of the 339 dairy farms inspected by the Department of Agriculture, Environment and Rural Affairs (DAERA) between 2020 – 2022 were not compliant.[5]

- **In Scotland:** 60% of the 114 dairy farms initially inspected by Scottish Environmental Protection Agency (SEPA) between 2020 and 2023 were in breach of regulations – with over half of the 56 dairy farms subject to follow-on inspections still being non-compliant.[6]

Broken slurry pipe © Philip Doyle

In addition, many other recently published reports by environmental regulators focussed on specific regions or pollution categories also confirm widespread regulatory non-compliance by the dairy industry. These include:

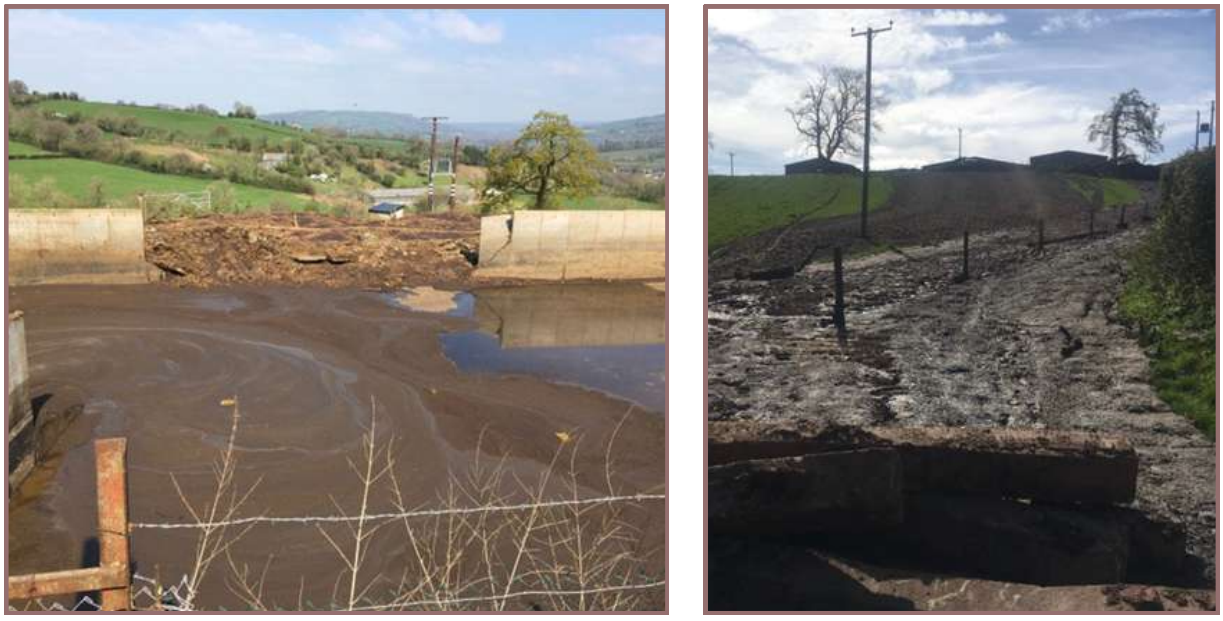
3. Source: River Action FOI Request – available on request
4. Source: River Action FOI Request – available on request
5. Source: River Action FOI Request – available on request
6. Source: River Action FOI Request – available on request

- Data presented to the NFU annual conference in February 2024 by the Chair of the EA showed the dairy industry accounting for over 75% of all serious pollution incidents caused by agriculture in 2022.[7]

- North Devon Dairy Report (2022): Inspections of 100 dairy farms by the EA discovered that 9 out of 10 farms were in breach of environmental regulations and two thirds were actively polluting a watercourse at the time of inspection.[8]

- The Assessment of the Environmental Performance of Red Tractor Assured Farms Report (2020): the EA's analysis of 3,000 farm inspections and 4,000 agricultural pollution incidents between 2014 & 2019 showed the dairy industry to be the single largest polluter, accounting for 48% of the more severe Category 1 & 2 pollution incidents in England.[9]

- River Axe Catchment Report (2019): Through inspections of 86 dairy farms in South Devon, the EA discovered that 95% of farms were in breach of environmental regulations with half actively polluting watercourses at the time of inspection.[10]



A section of concrete wall forming a slurry store failed leading to a loss of approximately 500,000 litres of cattle slurry © Oracle Environmental Experts

7. https://www.youtube.com/watch?v=1t0JGeLk-i8
8. https://uploads.guim.co.uk/2022/10/24/2022_09_28_NDPFA_Case_Study_v5_FINAL_(1).pdf
9. https://cutcher.co.uk/box/ea-assessment-red-tractor.pdf
10 https://anglingtrust.net/wp-content/uploads/2021/04/Final-Axe-Regulatory-Report.pdf

3. THE CAUSES OF DAIRY POLLUTION

River Action believes that a number of different factors have aligned to create the worse possible conditions for the nation's dairy farmers to be compliant with regulations designed to prevent pollution whilst remaining economically viable. These factors include:

- Pricing pressures from an ever-consolidating buying market forcing the industry to intensify significantly its production methods
- The failure of retailers to adopt effective environmental food certification schemes.
- The failure of the government to adequately incentivise & subsidise better environmental performance and promote technological solutions to dairy pollution.
- The ineffectiveness of the regulatory bodies tasked to protect our rivers, as witnessed by their continuous non-enforcement of environmental regulation and the adoption of an advisory approach to dealing with non-compliance.

Further details on each of the above can be found below:

3.1. Recent intensification of the UK Dairy Industry

Due to constant pricing demands on dairy farmers from the major supermarket groups, UK dairy farms have been subject to ever increasing pressure to intensify production methods in order to remain financially viable.

Key manifestations of the intensification of the industry include:

- **Increase in herd size per farm:** Available data shows that the number of dairy farms in the UK has steadily decreased in recent years, with a 14% reduction from 8,720 (2019) to 7,500 (2023).[11] The reduction of dairy farms has contributed towards the longer term trend of total cow number decline, with a 45% overall reduction from 3.3m to 1.84m between 1973 and 2023.[12] However, despite the reduction in the total number of farms and total number of dairy cows, the average size of dairy herds has still increased.

11. https://ahdb.org.uk/dairy/GB-producer-numbers#:~:text=Overview,dairy%20producers%20in%20Great%20Britain.

12. https://ahdb.org.uk/dairy/uk-and-eu-cow-numbers#:~:text=As%20of%20December%202022%2C%20the,herd%20totalled%201.85%20million%20head.

For example, over the last 13 years the average size of dairy herds in the UK has increased by 39% from 115 cows (2008)[13] to 160 cows (2021)[14].

- **Increase in milk yield per cow:** Milk output has risen significantly in recent years. Between 1975 to 2020, total domestic milk production increased by 14%, from 13.2m litres to 15.2m litres, with the average yield per cow having more than doubled from 4,100 litres to 8,200 litres.[15] Over the last 10 years, the average milk yield per cow has increased by 9% to up to 8,169 litres a calendar year per cow (2022).[16] This significant increase in productivity per cow is in part due to the development of more nutrient rich feed, which in turn increases the potential of slurry to cause more nutrient-intense pollution.

Between 1975 to 2020, the average yield per cow more than doubled from 4,100 litres to 8,200 litres. © akaratwimages

- **Unsustainable pressure on slurry infrastructure:** The above substantial increases in both herd size and productivity per farm correspondingly places significantly higher stress on existing slurry management infrastructure, leading to slurry storage systems being overwhelmed by these higher volumes of effluent, in particular at times of extreme rainfall.

- **Emergence of plant-based competition:** Further pricing pressure (and therefore another potential driver to intensify production) has been created by rapid growth in demand for plant based milk, with studies

13. https://researchbriefings.files.parliament.uk/documents/SN02721/SN02721.pdf

14. https://ahdb.org.uk/dairy/uk-and-eu-cow-numbers#:~:text=As%20of%20December%202022%2C%20the,herd%20totalled%201.85%20million%20head.

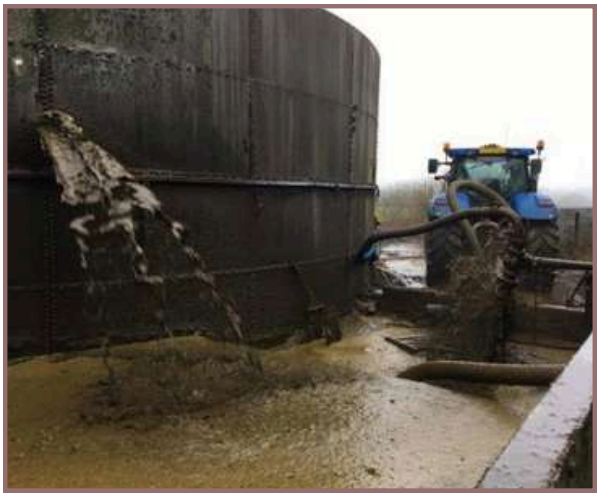
15. https://researchbriefings.files.parliament.uk/documents/SN02721/SN02721.pdf

16. https://ahdb.org.uk/dairy/uk-milk-yield

revealing that 1 in 3 people in the UK drink plant based milk regularly[17]. Plant based milk sales has increased by 24% during the period 2020-2022, with dairy milk sales correspondingly decreasing by 6%.[18]

- **Major consolidation in milk buying market:** The number of milk buyers has fallen between 1973 and 2022 from 690 to 98,[19] leaving the majority of dairy farms with ever fewer competitive options for selling milk. As a result of this "buyer's market", dairy farmers have come under extreme pricing pressures from the procurement functions of the major supermarkets, leaving many farmers with no choice as to whom to sell their produce to. The net effect is that the average dairy farm is left with minimal profit margin to invest in upgrading slurry management infrastructure in order to comply with environmental regulations.

- **Investment challenges in tenanted farms:** While around 54% of dairy farms are considered large farms (with over 100 hectares) with the requisite scale to invest in upgrading farm infrastructure, the remainder are smallholdings, with almost 40% of dairy farms being tenanted.[20] This significant number of tenanted farms potentially reduces incentive and financial capacity to invest in long term sustainable pollution and slurry management infrastructure.



Split in slurry tower © NDPA

Slurry interception ditch © NDPA

17. https://www.theguardian.com/business/2021/sep/17/britons-drink-plant-based-milk-demand
18. https://unearthed.greenpeace.org/2023/05/20/plant-based-dairy-marketing-lobbying/
19. https://theandersonscentre.co.uk/wp-content/uploads/2022/12/Outlook2023-Final-2.pdf
20. https://commonslibrary.parliament.uk/research-briefings/cbp-9851/

3.2 Failure of Government to adequately incentivise better environmental performance

Despite various pledges to the contrary, there is little evidence to show that promised government incentives to improve the environmental performance of agriculture have materialised sufficiently to make any meaningful impact:

- **Non-Delivery of ELMS incentives:** Despite being presented as an effective financial incentive for better environmental performance, the failure to date by DEFRA to execute a widespread and coherent implementation of the Environmental Land Management Scheme (ELMS) has left the farming community in a state of uncertainty as it transitions from the legacy Common Agricultural Policy subsidy regime. The promise of ELMS was to encourage better performance throughout an industry with a historically poor environmental record. However, other than a £396 per hectare incentive to reduce nitrogen input into groundwater, there appears to be no clear subsidy incentive to mitigate the most polluting elements of the dairy industry.[21] While the Government has set the target of reducing nitrogen, phosphorus, and sediment pollution from agriculture in waterways by at least 40% by 2038,[22] it has not yet introduced any credible road map or meaningful financial incentive regime to ensure those targets can be achieved.

- **Inadequacy of Government Slurry Infrastructure Grant Scheme:** In recognition of the fact that existing slurry management infrastructure remains significantly underinvested and is increasingly unable to cope with the higher yields per farm being placed on it by an ever more intensified industry, DEFRA introduced the Slurry Infrastructure Grant scheme in 2023. An initial £34m, which was expanded by a further £147m, enables dairy, pig and beef farmers to apply for grants of £25,000 to £250,000 to replace and expand slurry management infrastructure.[23] Whilst the concept behind the scheme is welcomed by River Action, its scale is inadequate to make any meaningful impact, with similar funding challenges existing with regard to equivalent schemes in Wales, Northern Ireland, and Scotland.
  - When applied across the totality of potential beneficiaries across the dairy, beef, and pig sectors, the current funding capacity of the scheme is inadequate and will not make any meaningful impact in reducing slurry pollution on a national level.
  - The scheme does not cover the needed upgrade of other critical items

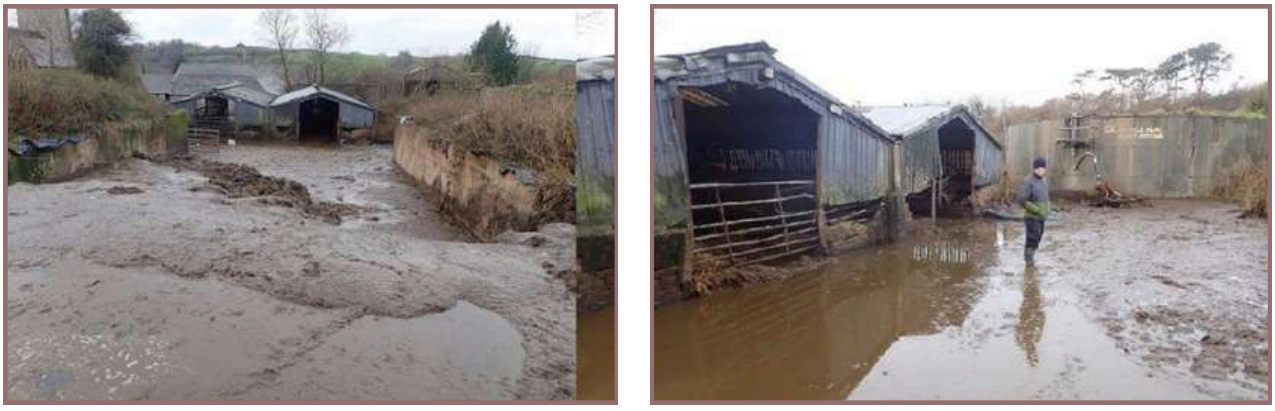
21. https://rb.gy/ik10yf
22. https://questions-statements.parliament.uk/written-statements/detail/2022-12-16/hlws449
23. https://www.gov.uk/government/publications/slurry-infrastructure-grant/about-the-slurry-infrastructure-grant-who-can-apply-and-what-it-can-pay-for

of dairy infrastructure which are causing river pollution – such as ailing silage clamps.
    - The fact that the grant scheme has to be 50% match funded by farmers, places untenable financial burdens on many smaller dairy farms and/or tenanted farms.

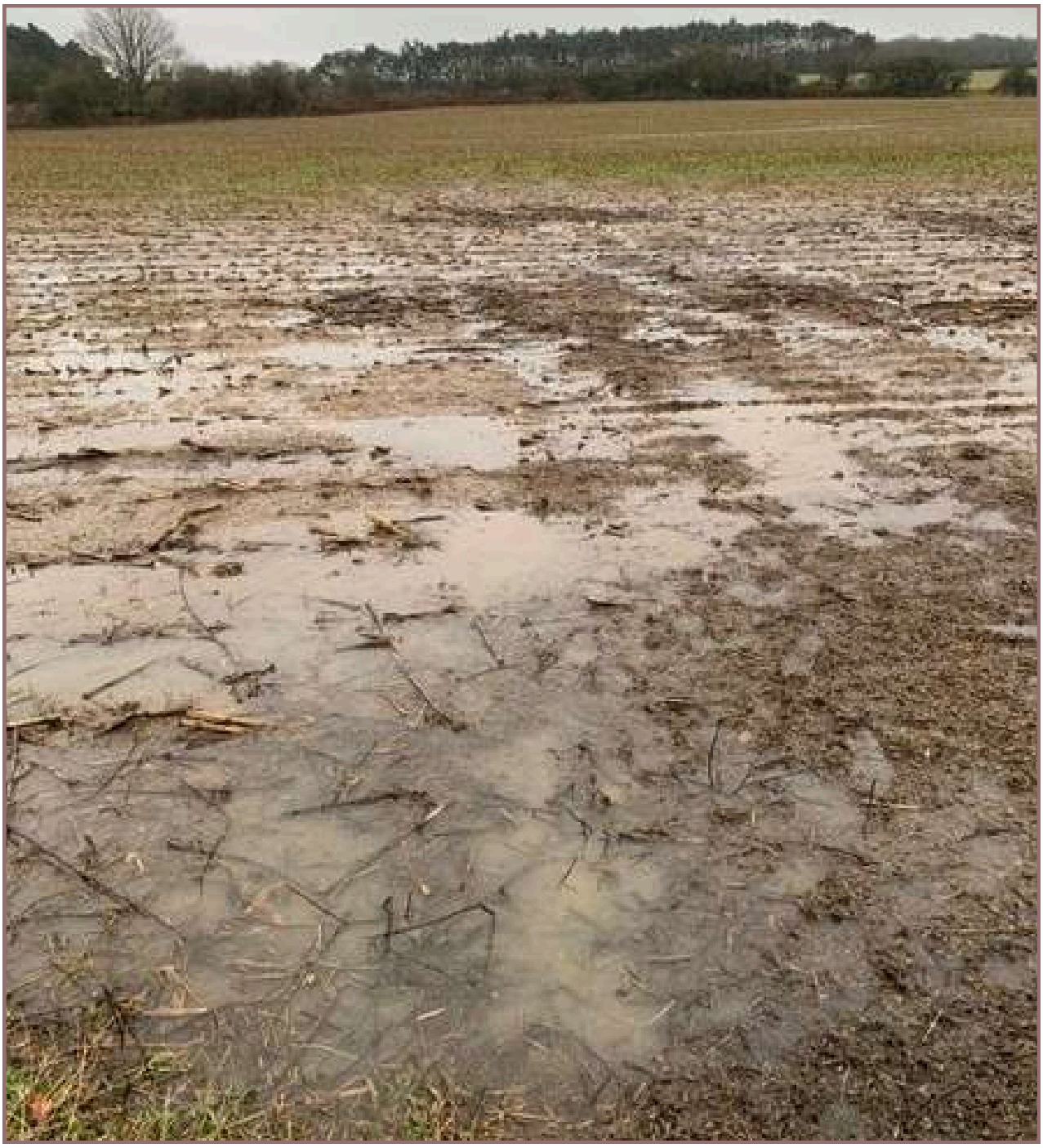
Failure of government to embrace technological innovations: A number of major river catchments in the UK are suffering from major nutrient surpluses in their soils - caused primarily by the prevalence of slurry/manure run-off from intensive livestock production. In contrast, the soils of other river catchments are in nutrient deficit due to intensive arable production, with these areas witnessing significant application of synthetic fertilisers.

- A large number of major river catchments in the UK are suffering from significant nutrient surpluses in their soils - caused primarily by the prevalence of slurry/manure run-off from intensive livestock production. These catchments tend to be located in areas of intensive dairy production such as the South West of England, West Wales and Cumbria and the Scottish borders. In contrast, the soils of other river catchments in the country are in nutrient deficit due to intensive arable production These regions, such as Lincolnshire and East Anglia, rely extensively on the application of synthetic fertilisers.

- Despite the availability of numerous technological solutions to re-process animal waste such as dairy slurry into organic fertilisers to facilitate its transportation, the lack of any central government-sponsored coordination, incentive, or regulatory requirement to implement such solutions will ensure their adoption will remain sporadic. As a result, River Action believes that the UK is missing out on a major circular economy opportunity to re-cycle significant quantities of animal waste from river catchments with nutrient surpluses (a major source of river pollution) as readily transportable fertiliser, and thus increase food security by reducing dependence on imported synthetic fertilisers.



Poor infrastructure and slurry storage © NDPFA



Topsoil run off caused by autumn fodder maize production

3.3 Failure of Environmental Regulation

In the decade between 2009 and 2019, funding for the EA's environmental protection budgets were cut in real terms by 63%, with staff numbers cut by 25% and prosecutions of polluting businesses cut by 88%.

This systematic de-funding by government of environmental protection has had a number of damaging implications on the increase in pollution by the dairy industry:

- **The failings of "Advisory Regulation":** Under government guidance, the EA's approach to preventing agricultural pollution in England is advisory and not enforcement based. As a result, prosecutions for severe breaches of environmental regulations are virtually non-existent. River Action believes that this approach ensures that minimal legal deterrents exist to discourage malpractice, creating a major cause for the unacceptable levels of agricultural pollution across the UK. To quote from the North Devon Dairy Report, 2022 p12).[24]

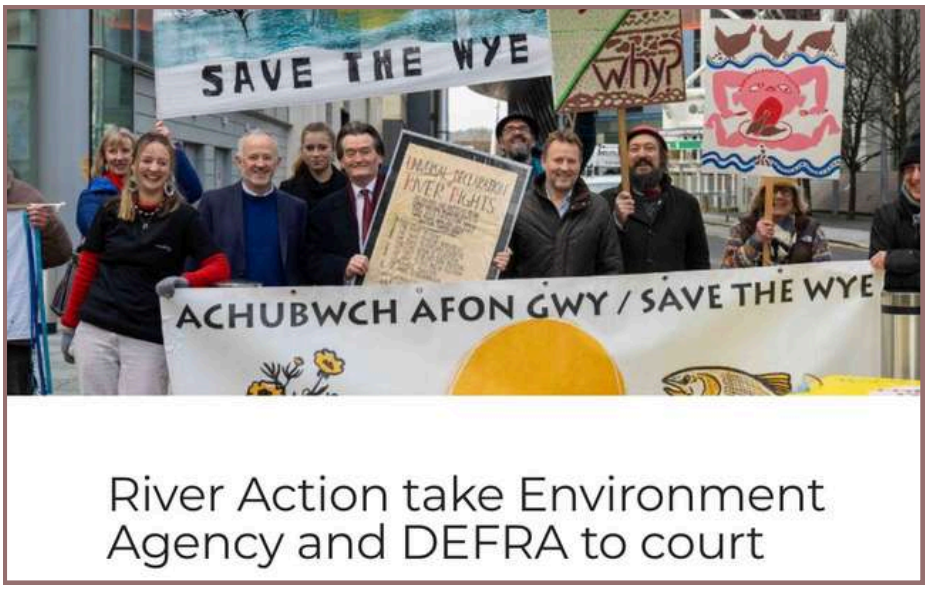
  "Most farmers were aware of the requirement for 4 or 5-months slurry storage but often admitted to taking a business risk of not investing in infrastructure because there was little regulatory presence in the catchment and the lack of direct pay back. Instead, they have been investing in increasing herd numbers, housing and improving milking systems (robotic milkers are part funded), which puts more pressure on existing undersized and poorly engineered infrastructure."

- **Water Quality Monitoring:** Across the nation, the monitoring of river pollution has been reduced significantly. To illustrate, in the UK's largest dairy producing area, encompassed within the EA's South West Region (covering Devon, Cornwall and Somerset), the monitoring of phosphate levels in rivers reduced from 9,262 testing results recorded in 2000 to 3,016 results in 2021. Over the same period the number of sample points on rivers was also reduced from 803 to 328.[25]

- **Conscious non-enforcement of critical Environmental Regulations:** It has been EA policy, in line with formal guidance from DEFRA, not to enforce key elements the 2018 Farming Rules for Water which are designed to protect the soils of river catchments from becoming over-saturated with excess levels of nutrients emitting from animal manures and/or fertilisers. River Action believes the conscious non-enforcement of these regulations has become a major contributor to the severe levels of diffuse agricultural

24. https://uploads.guim.co.uk/2022/10/24/2022_09_28_NDPFA_Case_Study_v5_FINAL_(1).pdf
25. Westcountry Rivers Trust analysis of EA data. Published in EA Data Explorer.

pollution present in a number of river catchments (of which excess spreading of dairy slurry is a major contributing factor). River Action has accordingly taken the EA and DEFRA to court via a Judicial Review process in which it alleges that the EA has acted unlawfully in a) failing to enforce the Regulation 4 a) of the Farming Rules for Water (which prohibits the over-application of fertilisers & manures), b) acting with no discretion by slavishly following DEFRA guidance and c) failing to protect the SAC of the River Wye by not enforcing these regulations. The case was heard in February 2024 and currently awaits judgement.[26]



River Action and supporters outside Cardiff Civil Justice Centre. Photo © Adam Finch

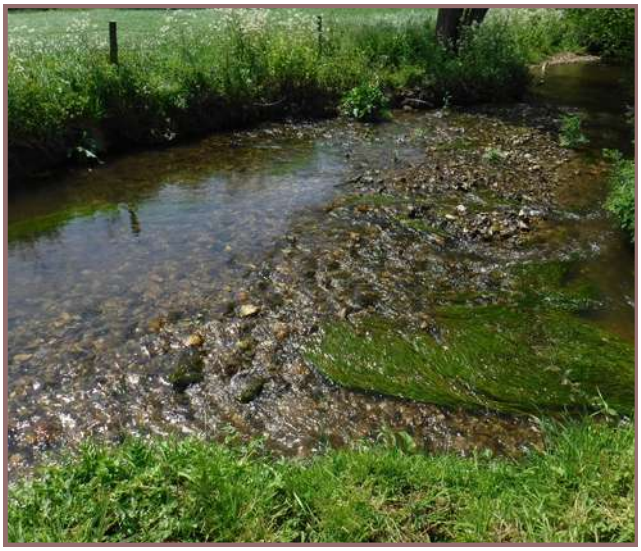
- **Inadequate farm inspections:** During the last 15 years farm inspections were seriously reduced in numbers, falling to under 500 in 2020, resulting in farms in England being likely to be inspected once every 250 years. River Action welcomed the announcement in 2021 of the doubling of the EA's number of farm inspectors and the resulting increase in farm inspections – which saw EA inspectors carrying out 703 inspections on dairy farms in the 2021-22 financial year,[27] rising further in 2023. However, given the huge backlog across the country that needs addressing, the historic under-investment in inspections remains a major contributor to the widespread environmental non-compliance. Meanwhile, the EA's "advisory" approach to farm inspections results in the absence of minimal subsequent enforcement action needed to ensure that identifiable breaches are rapidly remedied.

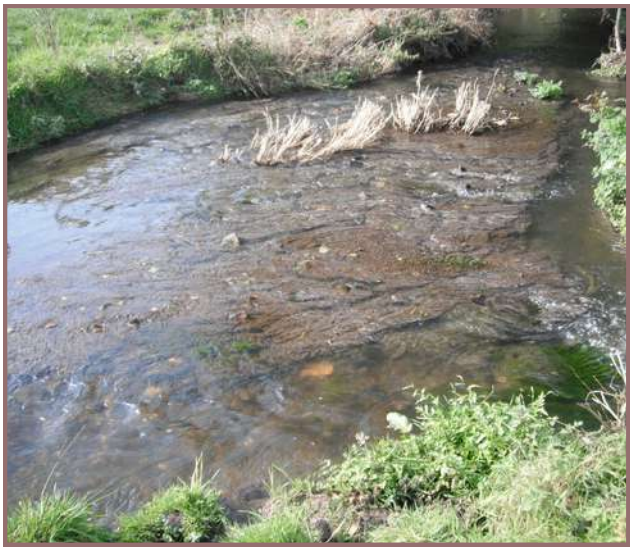
26. https://riveractionuk.com/river-action-take-environment-agency-and-defra-to-court/

27. https://www.fwi.co.uk/news/environment/air-and-water/nfu-defends-dairy-sector-amid-criticism-on-river-pollution

- To illustrate this endemic non-enforcement of regulations, FOI data provided by the EA in May 2023 showed that between April 2019 and May 2022 in its Devon, Cornwall and Somerset Region (the UK's largest dairy producing region accounting for c.40% of England's total dairy output) a total of 5 enforcement actions had been taken against dairy farmers for breaches of the Farming Rules for Water. All these enforcement actions comprised mere warning letters. However, in its North Devon Dairy report (produced over the same period of time) the EA revealed that almost 87 dairy farms were non-compliant in just one small area of Devon alone.[28]

Slurry pollution in the River Weaver. Oct 2023





River Otter, Devon – before and after a dairy slurry spill

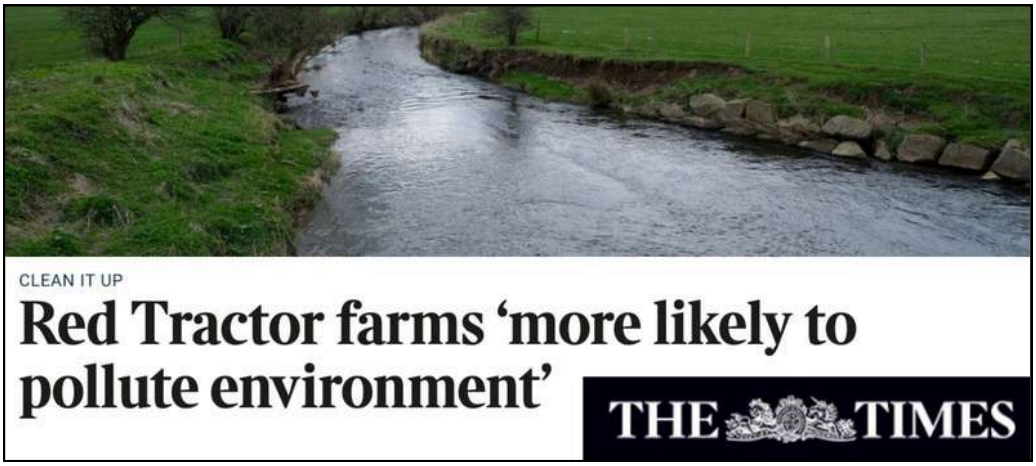
28. Source: River Action FOI Request – available on request

3.4. Inadequate environmental certification standards

There is currently, in River Action's view, no credible environmental certification scheme in widespread use by the UK food retailing sector to certify for good environmental performance across the dairy industry:

- **Woeful environmental record of Red Tractor Assurance:** An increasing body of evidence shows that the environmental elements of Red Tractor, the principal certification scheme used for the UK dairy industry, is wholly inadequate. Repeated reports show that the majority of Red Tractor assured dairy farms are in breach of environmental regulations. For example, all non-compliant dairy farms within both the EA's **North Devon** and **Axe Catchment** reports were Red Tractor certified. Meanwhile in its **Assessment of the Environmental Performance of Red Tractor Assured Farms**, the EA found that Red Tractor farms were responsible for a majority (62%)[29] of the most serious agricultural pollution incidents between 2014 and 2019 and that the Red Tractor quality mark was deemed not to be *"an indicator of good environmental performance"*.

- **Red Tractor's failure to deliver enhanced environmental scheme.** Attempts by Red Tractor to address its poor environmental record by announcing in December 2023 its "Greener Farms Commitment" scheme were blocked by the National Farmers Union, with the scheme being formally abandoned in March 2024. The events surrounding these recent developments raise major governance questions over Red Tractor's environmental integrity, demonstrating unequivocally the lack of any semblance of independence from the agricultural industry whose performance it is supposed to certify.


CLEAN IT UP

Red Tractor farms 'more likely to pollute environment'

THE TIMES

The Times: 'Red Tractor farms 'more likely to pollute environment' 03/04/2023

29. https://www.thetimes.co.uk/article/red-tractor-farms-more-likely-to-pollute-environment-clean-it-up-hj8mzg6s7

4. THE MITIGATIONS NEEDED TO END DAIRY POLLUTION

River Action is calling for a number of immediate actions to be taken, which if implemented in full will enable a substantial reduction in the levels of pollution that are emitted by the UK dairy industry. These include:

4.1. Greater pricing incentives from dairy processing companies to reward improved environmental performance

- There can be no doubt that a modest increase in the price paid per pint of milk would allow dairy farmers the financial capacity to invest in much needed infrastructure enhancements and/or sacrifice marginal production acreage to implement the proven nature-based solutions to minimise run off.

- River Action therefore welcomes the recent introduction by milk producer Arla Foods of such an incentive scheme through the launch of its Sustainability Incentive Model.[30] This initiative rewards dairy producers via a points-based reward scheme for taking various positive environmental actions.

- River Action calls upon all dairy processing companies and dairy cooperatives across the UK to introduce similar schemes and for the major supermarket buyers to require their introduction.

4.2. Adoption of credible environmental certification schemes by UK supermarkets

- Following the recent debacle surrounding Red Tractor's failed attempt to address its dire environmental performance record with the creation of an enhanced environmental certification scheme (Greener Farms Commitment), it is critical that UK supermarkets now embrace alternative credible environmental assurance schemes across their dairy product ranges.

- For example, one solution would be for Tesco to extend the application of the reputable Leaf Marque certification scheme, which it adopted in 2023 for its all grown product ranges, across its livestock-based product ranges, including fresh milk and other dairy products.[31]

30. https://www.arla.com/sustainability/the-farms/arlas-sustainability-incentive-model-qa/
31. https://www.thegrocer.co.uk/fruit-and-veg/tesco-grants-leaf-marque-certification-to-all-uk-growers/676713.article

4.3 For ELMS to deliver its promised rewards for better environmental performance

- The introduction to date of ELMS has been sporadic and largely confusing for the farming community. As a result, considerable scepticism exists with regard to its ability to deliver the systemic environmental improvements originally promised. River Action urges Government to act with real urgency to address these failings and to re-boot ELMS so that it delivers the environmental benefits originally promised.

4.4. For DEFRA to expand significantly existing grant schemes to improve dairy infrastructure and to encourage the adoption of technologies capable of re-processing animal waste to replace the use of synthetic fertilisers

- River Action calls upon the government to enable DEFRA to [at least double] the funding available to its Slurry Infrastructure Grant Scheme and for the governments of the Devolved Nations to make equivalent funding levels available.

- River Action calls on DEFRA to introduce specific incentives to facilitate the development and use of circular economy technologies which process dairy slurry and other animal wastes to enable its transportation to arable farming parts of the country for application as an organic alternative to imported synthetic fertilisers.

4.5. For environmental regulators to start fully enforcing existing regulations to ensure greater deterrence against the current widespread non-compliance across the industry.

- The advisory-focused current approach to environmental regulation is not working, as witnessed by the continuing excessive levels of agricultural pollution across the UK's waterbodies. In England the EA needs to move from its current ineffective advisory approach and to start to fully enforce the Farming Rules for Water. Likewise, DEFRA must abandon its current guidance to the EA aimed at deliberately creating loopholes for non-compliance with the Farming Rules for Water. Major acts of pollution that are deliberately caused by dairy farms and other agricultural producers must be addressed by robust legal enforcement. This will ensure that the current widespread flouting of environmental regulations is countered with meaningful deterrence.

- On the basis that dairy farmers would have been given every opportunity to utilise a significantly enhanced Dairy Infrastructure Improvement grant scheme (as proposed above), the adoption of a more stringent enforcement regime would be a fair and reasonable course of action. This would achieve the positive outcome of dealing with those bad actors across the industry.

4.6. Ensure that environmental regulations are regularly reviewed to address emerging sources of river pollution.

- For example, the production of maize needs to be subject to stricter regulation, whereby it becomes a legal requirement to under-sown autumn maize fields – and thus mitigate a major source of soil runoff during winter months.

5. CONCLUSION

The intensification of the dairy industry has created a major environmental crisis.

With higher volumes of cows operating on decreasing hectarage and with milk yields per cow progressively increasing, the nutrient load being emitted by the industry has become one of the UK's largest single polluters of our rivers.

The evidence collated by River Action demonstrates unequivocally that across the UK large numbers of dairy farms are in clear breach of environmental regulations, with slurry and silage mismanagement being the major cause of the problem.

These current practices of intensive livestock production are simply unsustainable, and all stakeholders involved have to act collectively and with urgency to end this blight of the natural world and our rivers in particular.

Dairy processors must reward better environmental performance through pricing incentives and retailers must insist on higher standards by adopting credible certification schemes. Government meanwhile has a critical role to play in helping dairy farms make a concerted effort to upgrade under-invested infrastructure and promote circular economy solutions to redeploying excess slurry to regions where it can be productively used.

Finally, and most importantly our environmental regulators must step up and start to enforce regulations created to prevent pollution, and in doing so create genuine deterrent against wilful malpractice.