

Nitrates, Biodiversity and Engineering Division,
Department of Agriculture, Food and the Marine,
Johnstown Castle,
Co Wexford.

Sent by email to: derogationreview@agriculture.gov.ie

23rd May 2019

Re: 2019 Nitrates Derogation Review

An Taisce welcome the opportunity to comment on 2019 Nitrates Derogation Review. However, we would highlight that there is a lack of clarity regarding the exact purpose of this review, and a lack of transparency regarding the motivation to undertake this review, and in relation to the end purpose of the consultation. The review document states that:

'The purpose of this public consultation is to seek views on the potential revisions to the terms and conditions of the current nitrates derogation'

It is outlined that the review will:

'examine further opportunities for derogation farmers to improve efficiencies and to reduce their environmental footprint. A public consultation will provide an opportunity for stakeholders to submit their views as regard the derogation and related issues. Following this consultation, an expert group comprising officials from DAFM, DHPLG, EPA and Teagasc will draw up recommendations in relation to the conditions that show

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costs to farmers benefiting from the derogation. It is expected that the outcome of this review, including recommendations, will be published mid-year, in order to allow derogation farmers sufficient time to plan for 2020 and beyond.'

However, it is unclear what precisely DAFM intend to do with these responses. The current derogation runs until the end of 2021, but the document makes reference to 2020. An Taisce would query what exactly the DAFM will do with these recommendations? Will they be legally binding for derogation farmers? Will they form part of the 5th Nitrates Action Programme, or is this something the DAFM intend to implement within the lifetime of the current derogation?

Notwithstanding this lack of clarity, An Taisce wish to make the following points:

1. Water Quality

1.1 Inspections

In the EPA 2016 State of the Environment report¹, it was outlined that there is a clear correlation between the areas with the highest nitrate and phosphorus concentrations in waters and areas with the most intensive agriculture and highest human population densities. Agriculture accounted for 53% of pollution in rivers. The EPA Water Quality in 2017 Report² showed that although there is a relatively stable picture with regard to nitrate concentrations in our rivers, the decreasing trend may be slowing down, with evidence of increasing nitrate concentration at some river sites.

In recognition of the threat posed by more intensive agriculture, particularly on derogation farms, the consultation document outlined that in regard to derogation farmers:

'It is recognised that compliance of a higher standard is required from these farmers to ensure a greater level of environment efficiency is achieved.'

However, data by the Department of Agriculture, Food & the Marine at the EPA National Water Conference in June 2017 revealed that 12% of farms with a derogation were failing to comply and of the remaining 130,000 the failure rate is 30%. Despite this failure rate, it would appear that only 3% of derogation farms were inspected in 2017³, and the EPA Article 10 report⁴ indicates that there has been a significant drop (9%) in the numbers of inspections between

¹ EPA (2016) Ireland's Environment 2016 - An Assessment

² EPA (2018) Water Quality in 2017- An Indicators Report

³ SWAN (2017) Response to Consultation - Draft River Basin Management Plan

⁴ EPA (2016) Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC): Article 10 Report for Ireland for the Period 2012-2015. Environmental Protection Agency, Wexford

2012 and 2015. The Nitrates Derogation Review document states that there were 6891 farms under derogation in 2018, and if this 12% of failing farms are representative of the full cohort, then approximately 826 farms were polluting ground and surface water in 2018, and as outlined below, due to the methods used to assess runoff potential from agricultural land, this is likely a gross underestimate.

1.2 Nutrient pathways

The consultation document outlines that there were a number of changes for the fourth Nitrate Action Programme for 2018-2021, which included:

'focus on intercepting and breaking nutrient transport pathways and preventing sediment and nutrient losses to waters'

and

'Targeting improved soil fertility for more efficient use of fertilisers and achievement of sustainable intensification objectives.'

Despite this, the current regulations still rely disproportionately on the soil phosphorus (P) test, Morgan's P, to determine the risks to water of nutrient runoff. Soil phosphorus tests were originally intended to be used as a means of assessing the phosphorus requirements of crop growth, but in latter years they have been used as an indicator of the risk of phosphorus loss from agricultural areas. The new measures which were introduced in the 4th NAP relate to poaching, farm road runoff, placement of troughs and excluding cattle from waterways, but no acknowledgment is made of the slew of recent research demonstrating that soil P tests are not an efficient means of testing for runoff risk. Most pertinently, one of the main findings in the Teagasc Agricultural Test Catchments (ACP) Phase II report⁵ was that soil type and geology are better predictors than soil P level for predicting phosphorus loss from agricultural land. This is further supported in work by Irvine and NiChuanaigh (2011) which clearly highlighted that:

'The adequacy of soil index 3 as a reasonable threshold to be used for the protection of surface and groundwaters is unproven'

Further to that, this review highlighted the water quality implications of runoff from soil classified as Soil Index 3. A Teagasc study (Tunney et al., 2010⁶) demonstrated that maximum

⁵ https://www.teagasc.ie/media/website/publications/2018/ACP_Phase_2_Report.pdf

⁶ Tunney, H., Kirwan, L, Fu, W., Culleton N, and Black A.D. 2010. Long-term phosphorus grassland experiment for beef production - impacts on soil phosphorus levels and liveweight gains. *Soil Use and Management* **26**: 237-244

beef production occurs at 4.1-6.4 mg/l Morgan's P, which roughly equates to 35 ug/l molybdate reactive phosphorus (MRP), equivalent to water on the good-moderate boundary. This also equates to the boundary between soil Index 2 and 3. However, the upper boundary of soil index 3 equates to 8 mg /l Morgan's P, thus clearly facilitating the eutrophication of surface waters, in contravention of the requirements of the Water Framework Directive (WFD) (2000/60/EC), which requires all surface waters achieve good status by 2021. What's more, untested soils are automatically classified as soil index 3, as outlined in Part 3 (16)(3)(a) of the GAP regulations 2017⁷ :

'(3) (a) For the purposes of this article, the phosphorus index for soil shall be deemed to be phosphorus index 3 unless a soil test indicates that a different phosphorus index is appropriate in relation to that soil.'

This assumption provides for the application of fertiliser to untested soils which may actually be Index 4, soils classified as having sufficient or excess nutrients, which will clearly lead to eutrophication of nearby water. This is particularly concerning given that 32-34% of grassland samples in Ireland were found to correspond to P index 4 category (Wall *et al.*, 2013). As such, the reliance on such tests to determine the nutrient management plans for both derogation and non-derogation farms is clearly failing to adequately safeguard surface water quality.

Furthermore, there has been clear evidence from research funded by the Irish Government that a pathway-receptor model should be implemented in order to address nutrient runoff. Nutrient transfer pathways are key to understanding the transport of pollutants to water, as highlighted by the Teagasc Agricultural Catchments Programme⁸. What's more, nutrient source pressures and transfer pathways vary considerably throughout different regions of the country⁹ depending on several factors, including soil type and geology. The EPA State of the Environment Report 2016 highlights that:

'the national farm inspection regime is currently focussed on the farmyard. However, a significant proportion of pollution can arise from agricultural land'

⁷ S.I. No. 605 of 2017

⁸ Teagasc (2017) Agricultural Catchments Programme Phase 2 Report. Teagasc, Wexford

⁹ Archbold, M., Bruen, M., Deakin, J., Doody, D., Flynn, R., Kelly-Quinn, M., Misstear, B. and Ofterdinger, U. (2010) Contaminant movement and attenuation along pathways from the land surface to aquatic receptors-a review. STRIVE Report No. 56. Environmental Protection Agency, Wexford.

Further EPA work¹⁰ found that

'achieving successful WFD outcomes depends on having a site-specific, three dimensional understanding of contaminant transfer pathways'

Given that Teagasc, the state agency charged with giving agricultural advice in Ireland have published research demonstrating that reliance on Morgan's P soil tests are not adequately assessing the risk of soil nutrient leaching, and that there is a need for a clear understanding of the transfer pathways in order to achieve our WFD objectives, An Taisce would question how, or indeed if, the current nitrates regulations are protecting our water and complying with the obligations of the WFD.

Recent EPA results would indicate that the regulations are failing. The 2016 EPA State of the Environment report found that the south and south-east of the country continue to have the largest proportion of groundwater and rivers with elevated nitrate concentrations over 10 mg/l NO₃, and that:

'There is a clear correlation between the areas with the highest nitrate and phosphorus concentrations in waters and areas with the most intensive agriculture....'

This corresponds with the data presented in the derogation review document showing that southern and eastern counties have the lowest levels of extensive farming systems, and as such it follows that they have the highest levels of intensive agriculture. Agriculture is the main source of nutrient pollution in our waters. The risk is clearly elucidated by the EPA¹¹:

'The ongoing and planned expansion in the agricultural sector under Food Harvest 2020 and its successor, Food Wise 2025 may threaten improvements in water quality, if not adequately managed.....Under the expansion plans, increased application of nitrogen and phosphorus to agricultural land is likely to happen in areas of the country where the concentrations of these nutrients in water are already elevated.....More targeted management measures are needed in the agricultural sector to accelerate the improvements required to achieve environmental targets set for waters

¹⁰ Deakin, J., Flynn, R., Archbold, M., Daly, D., O'Brien, R., Orr, A., and Misstear, B. (2016) Understanding pathways transferring nutrients to streams: review of a major Irish study and its implications for determining water quality management strategies. Biology and Environment: Proceedings of the Royal Irish Academy, Vol. 116B, No.3 pp. 233-243

¹¹ http://www.epa.ie/pubs/reports/indicators/SoE_Report_2016.pdf

Despite all of this evidence regarding the risks of relying on soil P tests and the absolute necessity for a nutrient pathway model, the NAP 2018 explanatory handbook¹² says:

'Research has shown that there is significant scope to improve farm nutrient management planning, on Irish farms, and soil testing is central to achieving this.'

An Taisce would submit that while the first part of the above statement is blatantly true, the second part regarding soil testing contradicts much of the research funded by the government to inform these very issues. To continue to rely on this test, which has been proven to be ineffective, will exacerbate the perpetual decline in our water quality.

One of the key principles adopted for the river basin management planning process in Ireland is putting 'the right measure in the right place'. There is no one-size-fits-all solution to nutrient management across Irish farms, and An Taisce submit that to continue to rely on the flawed soil P test, and to focus primarily on the farmyard as opposed to the land itself is furthering the pollution of freshwaters, and is in contravention of the WFD. This applies to both derogation and non-derogation farms. In our considered opinion, if further water pollution from agriculture is to be prevented, it is imperative that the results of recent research be implemented, with field scale models which take account of critical source areas and nutrient transport pathways, in addition to soil type, geology and precipitation mapping. The EPA have developed a catchment characterisation tool¹³ from which a field-scale mapping tool could be developed. The necessary research has been carried out, and the tools are available to the DAFM, but the impetus to utilise these is currently lacking. The data gathered by the EPA are beyond dispute, 53% of river pollution is attributable to agriculture, despite efforts by the IFA to pin the pollution on point source discharges. The data clearly indicate that the current system is unsustainable, and is, without a doubt, leading to water pollution. Given the situation the Netherlands faced, having to cull 160,000 cattle to save their nitrates derogation, An Taisce would hope that this issue will quickly become a government priority.

2. Ammonia (NH₃) emissions

The agriculture sector accounts for virtually all (98 per cent) ammonia emissions in Ireland arising from the annual application 40 million tonnes of animal manures together with 300,000

¹²<https://www.agriculture.gov.ie/media/migration/ruralenvironment/environment/nitrates/2018Nitratesexplanatoryhandbook03042018.pdf>

¹³ Deakin, J., Flynn, R., Archbold, M., Daly, D., O'Brien, R., Orr, A., and Misstear, B. (2016) Understanding pathways transferring nutrients to streams: review of a major Irish study and its implications for determining water quality management strategies. *Biology and Environment: Proceedings of the Royal Irish Academy*, Vol. 116B, No.3 pp. 233-243

tonnes of nitrogen in fertilisers. It is estimated that approximately 15 percent of the nitrogen in animal manures and 2 percent of nitrogen contained in chemical fertilisers is lost to the atmosphere as NH₃. As such, the NH₃ emissions trend is consequently largely determined by the cattle population.¹⁴

Ireland exceeded its emission limits for ammonia (NH₃) for the first time in 2016, and again in 2017. More worryingly, the EPA (2019)¹⁵ have highlighted that although ammonia is subject to 2020 and 2030 emission reduction targets, the latest projections estimate non-compliance this ceiling over this entire period. Their report outlines that:

'Limiting and reducing NH₃ emissions into the future could be problematic given the strong performance of the agriculture sector in line with the ambitious targets of Food Wise 2025. A 26 per cent increase in dairy cow numbers and 24 per cent increase in nitrogen fertiliser use over the period 2012 to 2017 are the most significant drivers.'

This increased fertiliser use is clearly highlighted in Figure 1, which contrasts the projections of nitrate imports predicted by Teagasc, overlaid with the actual figures calculated by An Taisce. The trend indicates a clear and dramatic increase in fertiliser import since the dairy quota was lifted in 2015. The EPA report highlights an 8.8% in synthetic fertiliser nitrogen use in 2017.

¹⁴<http://www.epa.ie/pubs/reports/air/airemissions/Irelands%20Air%20Pollutant%20Emissions%202017.pdf>

¹⁵EPA (2019) Ireland's Transboundary Gas Emissions 1990-2030

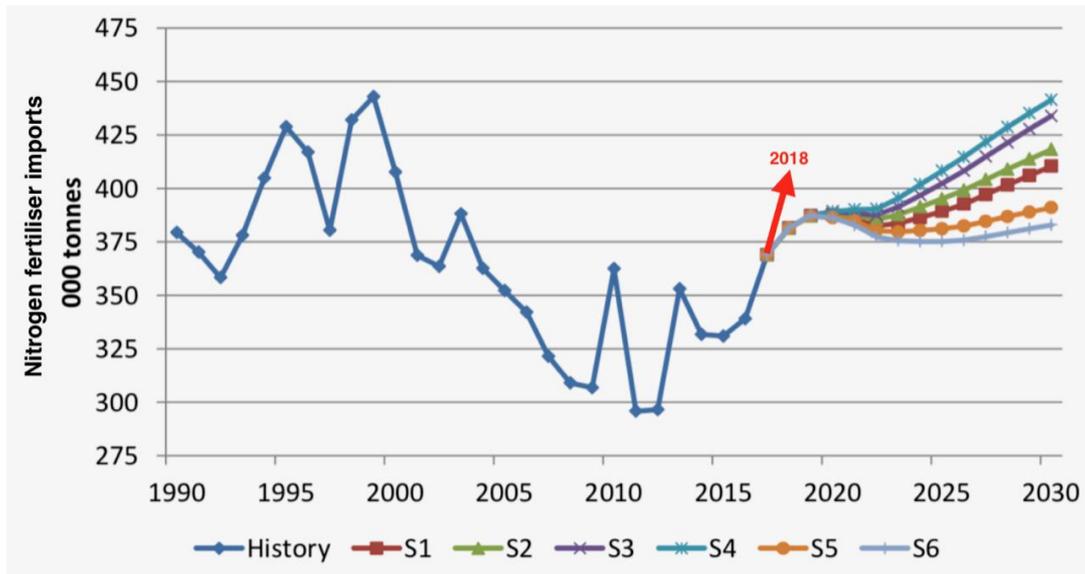


Figure 1: Data provided by Teagasc to the IEN on the volume of nitrogen fertiliser imported to Ireland, with future projections. Red arrow is superimposed by An Taisce, based on actual figures.

Ireland is also in breach of our commitment under the Gothenburg Protocol to reduce emissions by 1% from 2005 levels by 2020, in addition to our breaches under the EU National Emission Ceilings Directive.

No comprehensive monitoring measures have been put in place for ammonia, and there is no programme in place for the reduction of airborne ammonia emissions. Ireland's agricultural intensification programme, and concomitant nitrate derogation is increasing the volumes of cattle manure produced, and is also increasing the volumes of synthetic fertiliser required for the production of grass to feed this increasing herd. Both of these are going to further increase our ammonia emissions, in contravention of the National Emissions Ceilings (NEC) Directive (2016/2284/EU). This will expose the State to legal action both at national and EU level. Further, on the 13 March 2019 the European Parliament called for future CAP payments to EU farms to be linked to progress on cutting harmful air pollution including ammonia in a motion backed by an overwhelming majority of MEPs. The motion also highlighted how the agriculture sector was falling behind as other industries make efforts to tackle emissions: "*the costs of air pollution control in Europe are significantly lower in the agricultural sector than in other sectors where more stringent emission controls have already been implemented*". As such, the sustainability of Ireland's intensive bovine based agricultural system, and access to an EU

sanctioned nitrates derogation must be seriously called into question in the face of increasing ammonia emissions

3. Greenhouse Gas (GHG) emissions

Besides ammonia, intensive cattle farming is also a major emitter of GHG, and is leading to Ireland failing to reach its legally binding Paris Agreement targets. The Irish bovine agricultural lobby repeatedly claim that Ireland is a world leader in carbon efficiency. However, this case has been negated by the publication of the UN FAO GLEAM Report¹⁶ in February 2019. The UN FAO Report revealed that Ireland is the most carbon-intensive beef producer in Europe, and ranks as Europe's third highest on emissions from its dairy sector.

The GLEAM Report, which adopted a methodology examining the full life cycle impact of food production, contradicts claims by Ireland's Agri-industrial sector, which has long argued using outdated 2004 data, that Irish beef and dairy is among the most efficient in the EU in terms of emissions. Agriculture minister, Michael Creed has repeatedly and publicly defended the expansion of Ireland's beef and dairy sectors, despite spiralling emissions, by arguing that we are 'more efficient' than other countries so therefore it was better that we produce these intrinsically emissions-intensive foods than to have them produced even more inefficiently elsewhere.

However, the An Taisce Climate Change Committee's analysis of the GLEAM report concluded that:

"The FAO baseline results for livestock agriculture's climate impact indicates that, relative to other EU nations, Ireland's livestock agriculture has very high emissions intensities: close to the worst emissions per litre of protein for dairy production and the worst for beef. Indeed, for all animal product types analysed by FAO GLEAM, including sheep and pig production, Ireland's baseline emissions intensities are worse than the EU average". "However, climate action requires reduction of total agricultural sector emissions, so even if emissions intensity improves, any overall increase in production wipes out any saving. The primary drivers for Ireland's increasing agriculture emissions are the rapidly increasing use of fossil-fuel derived nitrogen fertiliser, which boosts grass growth, and ever more concentrate feed per head. Climate action requires limits on production or on total fertiliser and feed usage; otherwise efficiency gains, if any, will have no effect"

It is difficult for An Taisce to understand how the DAFM can promote the further agricultural intensification provided for by the nitrates derogation, yet for Ireland to still reach its legally

¹⁶ <http://www.fao.org/gleam/en/>

binding Paris agreement targets. The increases of fertiliser which are necessitated under Foodwise 2025, and facilitated by means of a nitrates derogation are furthering Ireland's status as a climate 'laggard', and leaving us exposed to the imposition of EU fines.

4. Sustainability of Irish Agriculture

The nitrates review document claims:

*'Grass based production is at the heart of Irish agriculture, with dairy and beef predominating in both overall output terms and export values. As a result of the temperate climate, long grazing season and productive soils, Irish farms have the potential to produce high yields of grass and crops resulting in low costs of production and leading a **highly sustainable production system.**'* [An Taisce emphasis]

However, An Taisce would highlight that on April 4th 2019 in a Farming Independent article¹⁷ Teagasc set out a stark warning on the sustainability claims made for Irish food export promotion, warning that greenwashing could backfire:

'In (Bord Bia's) Origin Green we are making very strong claims about sustainable performance and environmental performance that is creating a need for credible demonstration of sustainability - the industry needs credible evidence rather than glamour stories.

If we are to continue with the sustainability claims that we are a clean, green food producing nation, we need to prove it. Other organisations outside of Ireland will be very quick to pounce on claims that we make.'

The Government supported Food Wise 2025 plan providing for the quantitative growth of the agri-food sector undermines national commitments and environmental sustainability in regards to water quality, ammonia and greenhouse gas emission reductions. Action on reducing water quality pollution and ammonia emissions needs to be taken in conjunction with a major reduction of greenhouse gases and damaging impacts on nature of Irish agriculture under current Foodwise 2025 Strategy for expanding beef and dairy exports. Indeed, the March 2019 Joint Oireachtas Committee on Climate Action report recommended "a need for a more diversified, resilient, sustainable and equitable model for Irish agriculture", and

¹⁷ <https://www.independent.ie/business/farming/agri-business/greenwashing-could-backfire-on-farming-37971831.html>

recognised that Irish agriculture has become over-reliant on emissions-intensive beef and dairy production.

As outlined by Phil Hogan, European Commissioner for Agriculture and Rural Development, at a dairy conference in Dublin, there is a need for a 'more sustainable foundation' for dairy, and that the Netherlands is 'a cautionary example'. He highlighted the need for EU states to get the balance right under the Nitrates Directive and the WFD, and warned that:

'Failure to act now will lead to negative consequences in the near future, potentially very negative consequences'¹⁸

An Taisce submit that it is Ireland's nitrates derogation which is propping up the unsustainable and environmentally damaging Foodwise 2025 policy. This intensive agriculture is putting Ireland in breach of multiple EU and international laws and agreements, and is working in direct contradiction of our recently declared climate and biodiversity emergency. Without drastic measures to reduce the pollution and ecological damage caused by the intensification of this industry on both derogation and non-derogation farms, its future is clearly limited, along with the continuation of Ireland's nitrates derogation.

An Taisce would request that you take these comments into account

Is mise le meas,

A handwritten signature in black ink, appearing to read 'Elaine McGoff', written in a cursive style.

Elaine McGoff, PhD

Natural Environment Officer, An Taisce- The National Trust for Ireland.

¹⁸ <https://www.irishexaminer.com/breakingnews/farming/dutch-dairy-cull-reduces-phosphate-output-907736.html>

Responses to consultation questions

These responses should be considered in combination with our written submission above, which further elucidates on the points we raise.

1. Our livestock systems are based on the maximum utilisation of grassland. How can we increase the efficiency of grassland management on derogation farms, while protecting the environment?

Given our water quality data, our ammonia and GHG emissions, and the dire state of our sensitive habitats and species, as assessed by the NPWS, this is not possible. Herd reduction and agricultural diversity, as recommended in the JOCCA report, are the only way to protect the environment in any meaningful way. Intensive agriculture is the leading cause of water pollution, ammonia emissions and emitter of GHGs, to continue this model will be the death knell for Irish biodiversity, and will further climate breakdown. Sustainable intensification is an oxymoron.

2. How can livestock manure be best managed to ensure its impact on the environment is minimised?

Primarily by vastly reducing the overall volume of manure produced by means of a move away from intensive bovine agriculture, and once the volumes of manure are deemed sustainable, field scale source-pathway-receptor modelling should be implemented to minimise runoff.

3. How should agricultural impact on soil be minimised on derogation farms?

An Taisce do not have expertise in soil science, but are aware of recent research indicating that soil quality is imperiled by intensive agricultural practices, due to many factors including erosion, loss of organic matter and impacts due to the application of fertilisers, herbicides and pesticides. It would appear to An Taisce that implementation of the JOCCA recommendation for a more diversified, resilient, sustainable and equitable model for Irish agriculture would certainly go some way towards addressing the agricultural impacts on soil.

Further, the UK body Sustainable Soils Alliance¹⁹ are providing advice to the UK government regarding the sustainable management of soil, and many of their recommendations would undoubtedly prove useful in an Irish situation.

¹⁹ <https://sustainablesoils.org/our-approach>

4. What specific actions can derogation farms take to minimise their impact on the environment?

The necessary changes need to be implemented through top-down restructuring of our current intensive agricultural system, and concomitant policy changes. Although individual farmers can minimise their impact by abiding by the regulations, the problem is that currently, the regulations themselves are not sufficient safeguards for our environment.

5. Should all intensive livestock farms be subject to the conditions of the derogation whether they apply or not?

The intensification of the industry as a whole should be reviewed, as both derogation and non-derogation farms are causing the ecological and climate impacts outlined above. Given that derogation farms are continuing to pollute freshwaters, and to emit ammonia and GHGs, the conditions imposed on them are not sufficient, and should not be held up as a best practice example for non-derogation farms to aspire to. More stringent conditions should be applied, and more importantly, enforced across all farms.