An Taisce
The National Trust for Ireland

Nitrates Consultation,

Water Advisory Unit,

Department of Housing, Local Government and Heritage,

Custom House,

Dublin,

D01 W6X0.

Sent by email to: wau@housing.gov.ie

September 2021

Re: Fourth Review of Ireland's Nitrates Action Programme- Stage 2

A Chara,

An Taisce welcomes the opportunity to comment on this Nitrates Action Programme (NAP) Stage 2 consultation, and would like to make the following comments.

1. General comments and Governance

This review of the NAP comes in the midst of an ever-worsening water quality crisis, with the EPA increasingly highlighting the worsening situation. This is particularly the case as a result of elevated nitrogen levels in the south and south east of the country, with 85% of the pollution as a result of agriculture[1]. Clearly substantial changes are necessary in the management of nitrogen inputs to agricultural land to comply with the Nitrates and Water Framework Directives.

[1] EPA (2021) Assessment of the catchments that need reductions in nitrogen concentrations to achieve water quality objectives

We would draw the Department's attention to the situation in the Netherlands where, on foot of legal action, drastic cuts in the number of dairy cows was necessary, most recently to comply with both the National Emission Ceiling Directive (NECD) limits for ammonia, and prior to that to avoid losing the Nitrates derogation on foot of elevated phosphorus runoff. Given the consistent breaches of the Nitrates and Water Framework Directive (WFD), and the NECD for ammonia it's only a matter of time before similar legal action is taken in Ireland. This will have drastic and sudden impacts on the farming sector in Ireland, and proactive action by the Government now could reduce the ensuing shock to the sector. While nationally the Dutch have a higher average dairy intensity than Ireland, in the most dairy intensive areas in Ireland, such as in Cork, and on high grazing platforms, the average cattle number per hectare is comparable with dairy intensive areas of the Netherlands. Ireland is an outlier in regard to the rapid expansion in its dairy herd (Figure 1), and are clearly out of step with other similarly dairy intensive member states in latter years. The environmental breaches as a result of this policy choice will have legal ramifications.

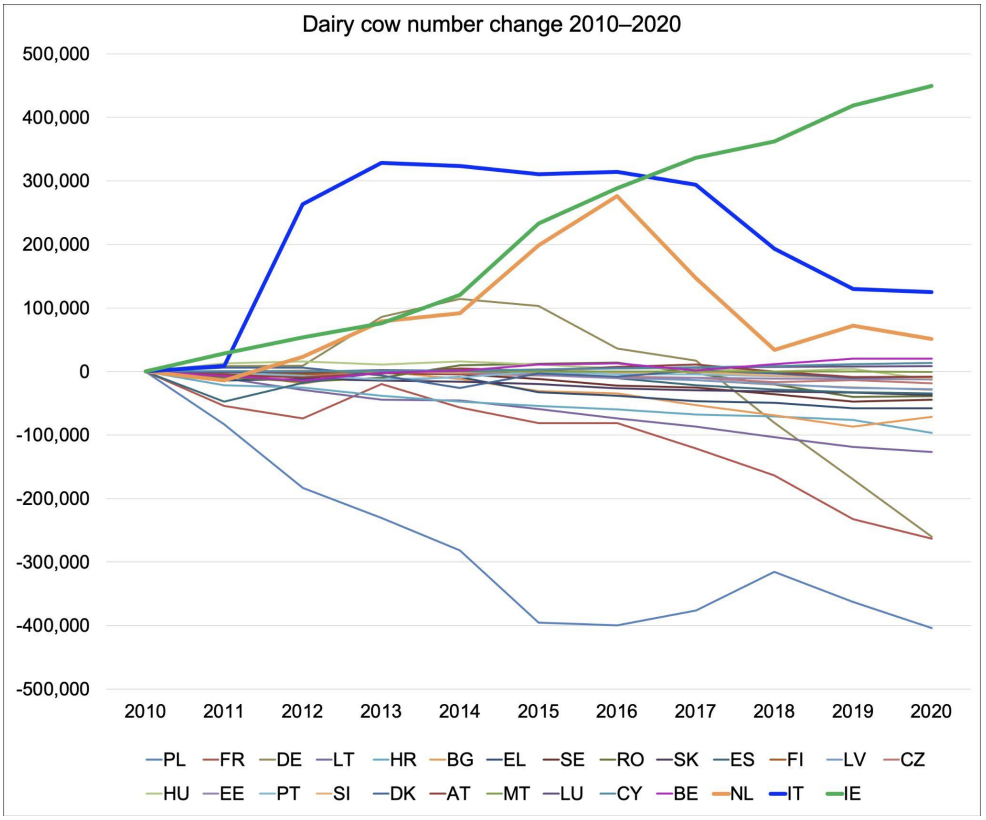


Figure 1: Total change in dairy cow numbers by EU nation 2010-2020

Source Eurostat[2]

[2] https://ec.europa.eu/eurostat/web/products-datasets/product?code=tag00014

We submit that Ireland's derogation from the Nitrates Directive is exacerbating this situation, and given that it was granted on the condition that it would not impact compliance with the directive, we do not believe the derogation for Ireland should be renewed. We note that the exact relationship between derogation farms and the nutrient enrichment of water is not provided for this assessment, which is a major gap in the information provided to the public for the purposes of this consultation.

Additionally, intensive non-derogation farms should also be critically reviewed in light of water quality issues and Teagasc modelling. We submit that Ireland cannot stay within our likely sectoral limits with current cattle numbers, and proposed reductions in the suckler herd will not address the water quality impacts as a result of cattle density in the south and south-east of the country, which is predominantly dairy focused. Nor will it be sufficient to reduce the GHG or ammonia emissions, given that methane and ammonia emissions increase in lockstep with milk output. Replacing suckler cattle with dairy cows will result in increased nitrogen emissions to air and water.

1.1 Governance

No effective national governance is in place to limit total bovine production to avoid the rebound effect of increasing nitrogen pollution that has resulted from expansionary dairy policy. Efficiency measures, such as the Teagasc MACC measures including the Economic Breeding Index and Carbon Navigator, have therefore likely enabled more pollution rather than less.[3]

We note that there is a lack of transparency in the governance structure of the NAP, and the overlap with the River Basin Management Plan (RBMP). The next NAP should provide a clear elucidation of the roles and responsibilities of the Government departments and agencies for the implementation, monitoring and evaluation of the NAP, in addition to monitoring and reporting on this. Furthermore, there should be improved transparency in the role and actions of the Nitrates Expert Group, with publicly available information on their work, members, output and recommendations.

Additionally, there is a clear need for cross-sectoral collaboration for policy coherence across the board, thereby improving coherence between national policies with clear implications for water quality, such as NAP, the Common Agricultural Policy (CAP) and the River Basin

[3] Intergovernmental Panel on Climate Change (2019) Special Report on Climate Change and Land Ch. 5 Food Security: " *in order for the livestock sector to provide a contribution to GHG mitigation, reduction in emissions intensities need to be accompanied by appropriate governance and incentive mechanisms to avoid rebound effects, such as limits on total production.*"

Management Plan (RBMP). These policies clearly need to work in harmony to achieve the necessary outcomes for water quality.

A mechanism for subsequent monitoring and reporting, and targeted and swift action in case of unforeseen impacts to water quality resulting from weaknesses in the next NAP and ensuing GAP regulations should be clearly laid out.

1.2 Summary

An Taisce submit that based on the information provided in the consultation document, we do not believe that the declining trends in water quality will be comprehensively and urgently tackled in the next NAP. All of our environmental indicators highlight the need for a decrease in the input of organic and inorganic N on intensively farmed free draining soils, but we submit that the proposed measures will not be enough to achieve the necessary decreases. As such, we do not believe that Ireland should be seeking another derogation, as we do not have the safeguards in place.

While we acknowledge some of the measures may address nutrient run-off to a certain extent, we are faced with a situation where a reduction of greater than 50% in Nitrogen loading is required in some catchments. Nothing short of drastic action will deliver that, and no such action is proposed in the consultation document.

Failure to implement the necessary measures will ultimately result in legal action, either via national courts or by the EU Court of Justice. This will have major and sudden implications for the agricultural sector. Delaying the necessary steps, including removal of the derogation, is not just environmentally damaging, it is ultimately doing a disservice to the farming community.

Our rationale underpinning our view is further outlined below.

2. Chemical Fertiliser Controls

We note that it is proposed in the consultation document that nitrogen allowances will be reduced up to 15% in some areas based on the EPA catchment assessment report:

> *"Additionally, the nitrogen allowances as outlined in Table 12 of the regulations will be reduced by 10% nationally and potentially up to 15% in some areas based on the EPA catchment assessment report."*

An Taisce has calculated the percentage load reduction needed year on year per catchment to achieve the Environmental Water Quality Standard of 2.6 mg/l N in the downstream estuary. These figures are based on the Total Load figures given in Table 2 and Table 3 of the most recent EPA report[4], with the results given in Table 1, and a subset illustrated in Figure 2.

[4] EPA (2021) Assessment of the catchments that need reductions in nitrogen concentrations to achieve water quality objectives

Table 1: Percentage load reduction necessary per catchment and year, based on EPA data

River Catchment	Area km^2	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19
Avoca	652	0	0	0	0	0	0	0	0	0	0	0
Bandon	608	6	0	8	16	10	5	17	7	20	22	25
Barrow	3067	44	57	36	37	33	37	35	36	52	68	52
Blackwater	3324	0	14	0	0	0	8	2	26	14	18	20
Boyne	2695	1	28	16	19	3	24	20	4	11	36	32
Corrib	3138	0	0	0	0	0	0	0	0	0	0	0
Deel	486	0	0	5	0	0	0	13	0	15	38	26
Dodder	113	0	0	0	0	0	0	0	0	23	0	0
Erne	4372	0	0	0	0	0	0	0	0	0	0	0
Fergus	1042	0	0	0	0	0	0	0	0	0	0	0
Lee	1253	0	0	0	0	0	0	0	0	0	0	4
Liffey	1256	0	0	0	0	3	2	12	0	0	31	10
Maigue	1052	0	0	0	0	0	0	0	0	0	10	20
Moy	2086	0	0	0	0	0	0	0	0	0	0	0
Nore	2530	11	8	21	10	12	21	18	14	19	35	39
Slaney	1762	57	46	44	38	45	40	35	43	45	61	52
Suir	3610	23	36	17	0	0	0	0	3	7	9	7
Tolka	146	0	0	0	0	0	6	0	0	0	14	19

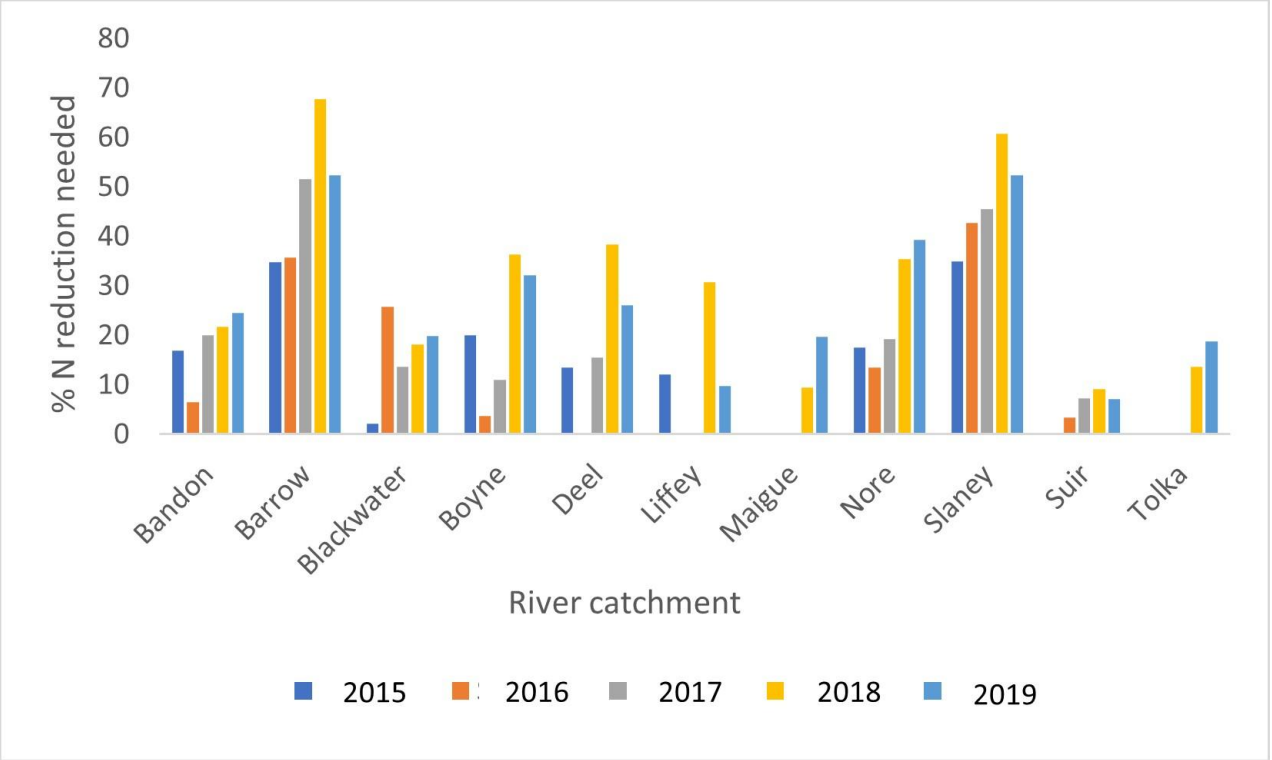


Figure 2: Percentage nitrogen (N) load reduction necessary per catchment and year, based on EPA data

The scale of the problem is apparent, with a number of catchments requiring drastic reductions of N load, far above the 15% reduction potentially proposed for some catchments.

An Taisce would question how the load reductions necessary will be achieved without significant caps on total fertiliser input or stock reductions. Teagasc were requested to model the impact of a number of farm nitrogen mitigation measures in order to inform policy to deliver the catchment based nitrate load reduction estimated by the EPA. This analysis[5] highlighted the linear relationship between N surplus and N leaching :

[5] Teagasc (2021) The Impact of Nitrogen Management Strategies within Grass Based Dairy Systems

> *"In a review of the literature a significant linear relationship was found between N surplus per hectare and N leaching to groundwater on free draining soils, therefore suggesting that reducing surplus N is an effective method on reducing N leaching."*

and clearly indicated that this was as a result of chemical N and stocking density:

> *"There was strong agreement between the MoSt/PBHDM and the €riN/MDSM models on the influence of chemical N application rates and stocking rate on N leached to 1 m depth"*

Among a range of policy measures modelled by Teagasc[6], stocking reduction and reductions in the load of chemical nitrogen were predicted to provide the highest N load reduction. Precision N spreading was confounded by high interannual variability in N uptake, and changes to the timing of fertiliser spreading did not provide large load reductions.

The modelled increases in N load as a result of high grazing platforms is also notable, and we will address this issue in Section 6.

One of the models in the report clearly indicated that urine deposits and chemical fertiliser are the main drivers of nitrate leaching, 63% resulted from urine, 29% from chemical fertiliser and 8% from slurry, atmospheric deposition and soiled water:

> *"Approximately 20% of surplus N (48 kg N/ha/year) in the baseline farm (Scenario 1) was leached in the form of nitrate (Table 3.3). Approximately, 30 kg of this N loss originated from urine deposited in paddocks, 14 kg came from the application of fertiliser N and 4 kg came from slurry, atmospheric deposition and soiled water"*

The following finding is also very pertinent, in light of the proposals in this consultation:

> *"The €riN model calculated a nitrate loss rate of approximately 28% for urine N and used a 5.6% loss rate for fertiliser N. The model predicted that spreading 10% less chemical fertiliser N, in the baseline farm, mitigated the risk of nitrate loss by 3%, while reducing chemical N by 20% reduced potential nitrate loss by 7% (Table 3.4)."*

Given that, according to the model, a 20% reduction in chemical N led to a modelled 7% decrease in nitrate loss, what percentage reduction will be necessary in the catchments requiring over 50% reduction in N load? The 10-15% reduction in nitrogen allowance posed by the consultation document will clearly not be enough, as evidenced in the commissioned

[6] Teagasc (2021) The Impact of Nitrogen Management Strategies within Grass Based Dairy Systems

research by Teagasc[7], for the very purpose of informing policy. It would appear that the proposed measures in this consultation are not rigorously based on the modelling commission for that very purpose.

It is clear from the report that chemical N input will have to be reduced and capped, in addition to a reduction in stocking density, and the EPA have indicated where these reductions need to happen. As such, it is clear what needs to happen and where it needs to happen, but this document fails to provide any evidence that the necessary significant changes will be implemented.

Recommendation

- We would recommend that the Department, or Teagasc, model the exact load reduction as a result of measures proposed in the new NAP to clearly demonstrate that they will likely result in the load reductions the EPA has indicated are necessary. Teagasc clearly has the capacity to model load reductions as a result of various measures, and the EPA have indicated how much tonnage of N needs to occur in the problematic catchments. Total catchment imported N (fertiliser and feed) needs to be monitored, strictly limited and reduced to ensure water quality and ammonia limits are met. Given the dire state of our waters, there is no room for ambiguity in this. The dots need to be joined, and this data should be front and centre for the new NAP to have any credibility.

3. Soil P buildup

We would highlight that the consultation document disregards one of the main points arising from the 1st stage consultation. To quote from the consultation document:

> *"The main point to emerge from the consultation response highlighted a perceived disproportionate reliance on the soil P test, to determine the risks of nutrient runoff. It was suggested that soil type and geology are better predictors than soil P level for predicting P loss from agricultural land. It was further suggested that the NAP should move away from the reliance on Morgan P testing as a means of assessing run-off risk to waters."*

Despite this, the consultation document outlines that instead of moving away from this reliance on soil P, the Department are in fact considering extending and expanding soil P buildup to more farms, to further exacerbate the problem:

[7] Teagasc (2021) The Impact of Nitrogen Management Strategies within Grass Based Dairy Systems

"being proposed to include the measure in the next programme and extend this facility to farmers operating above 100 kg N/ha."

The logic followed here by the Department is clearly that where the soil P is optimal, P loss to the environment is minimised, and the way to determine optimal P is by use of Morgan's P soil test. However, this method has been repeatedly debunked in terms of its usefulness for gauging runoff risk, yet the research on this is once again being overlooked in this consultation. This continued reliance on Morgan's P soil test entirely undermines this statement in the consultation document:

"Ensuring optimum soil fertility while balancing the nutrition of our grassland system to minimise nutrient and sediment losses to the environment is one of the central focuses of this review"

To emphasise this point, we will now reiterate the research findings which we included in our submission on the Stage 1 consultation.

2.1 Research on Morgan's P soil testing

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. There is an extensive body 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 report[8] 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., 2010[9]) demonstrated that maximum 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

[8] https://www.teagasc.ie/media/website/publications/2018/ACP_Phase_2_Report.pdf

[9] 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

Framework Directive (WFD) (2000/60/EC), which requires all surface waters achieve good status by 2021. Moreover, untested soils are automatically classified as soil index 3, as outlined in Part 3 (16)(3)(a) of the GAP regulations 2017[10]:

> *'(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 Programme[11]. Moreover, nutrient source pressures and transfer pathways vary considerably throughout different regions of the country[12] depending on several factors, including soil type and geology.

Further EPA work[13] 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, and the changes which are being

[10] S.I. No. 605 of 2017
[11] Teagasc (2017) Agricultural Catchments Programme Phase 2 Report. Teagasc, Wexford
[12] 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.
[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

proposed for the next cycle NAP will protect our water and comply with the obligations of the WFD.

Recommendation

- We would recommend that any increases in phosphorus application should be determined on a case by case basis, with a reliance on the latest EPA data and their PIP maps to indicate potential risk based on soil type and pathway analysis. Blanket increases based on a flawed test will exacerbate phosphorus runoff, and this should not be permitted.

4. Banding for excretion rates

An Taisce welcomes the proposal to introduce bands for livestock excretion rates. However we note that it is proposed that this would be introduced in a phased manner. The timeframe for this should be clearly outlined, and expedited. As highlighted by the EPA recalculations, the N excretion rates have been underestimated for years, and given the significant water quality issues it should be a priority to rectify that. This is also vital in terms of equity for farmers operating under the standard Kg/N/Ha rate.

Furthermore, we would express concern regarding the Teagasc research[14] underpinning this approach, and subsequent policy decisions. There would appear to be a suggestion that farmer incomes should be given higher priority than environmental compliance:

> *"The economic impact at farm level of reduced chemical N and stocking rate or banding can be significant. Therefore, careful consideration should be taken in implementing any further restrictions on farms that comply with best practice concerning current Nitrate Regulations (S.I. No. 605 of 2017, as amended in 2018 and 2020)."*

While we recognise the need for farmers to be financially supported to make the necessary changes, we would strongly highlight that we are failing, as a country, to comply with a number of EU Directives, most relevant in this case are the Nitrates Directive and the Water Framework Directive. The current nitrate regulations are clearly not protecting water quality, so no assumptions should be made regarding the efficacy of compliance with those to

[14] https://www.teagasc.ie/media/website/publications/2021/Nitrates-Modelling-Final.pdf

protect water quality. Until such a time as the regulations are amended, and proven to be sufficient, reliance upon them to achieve legal compliance is flawed.

The cost of not taking the necessary action should be front and centre in the Government's mind, protecting farmers incomes with the ongoing support for business as usual is doing both farmers and the environment a disservice. Legal compliance is not optional and needs to be achieved in the near-term without fail.

Recommendation

- The timeframe for banding should be clearly outlined, and expedited.
- The necessary support structures should be put in place for farmers to adjust their stocking rate accordingly

5. Nutrient Management Planning

We would note that nutrient management planning was raised as a significant issue in the Stage 1 consultation, and the importance of effective nutrient management was acknowledged by the Department in the Stage 2 consultation document:

> *"It is clear from a number of the submissions that nutrient management planning is not being implemented in many cases. This is further borne out in research undertaken by Teagasc. Mainstreaming the use of these tools and ensuring their regular use will be a key component of any successful NAP"*

However, this is only mentioned in the first part of the document, with no further reference to how this will be incorporated into the new NAP. Nutrient management plans, and their rigorous implementation, must be a key component of the updated regulations. There is a lot of focus on the right measure in the right place, and on the valuable work done by the EPA in identifying the critical source areas. While we would welcome the principle of targeted nutrient application away from critical source areas, the description of how this will work in practice is not provided, and implementing it would require careful spatial planning on behalf of the landowner. How specifically will these areas be avoided, particularly given the low levels of compliance with the GAP regulations and the lack of nutrient management plans?

We are aware of anecdotal reports that even when a nutrient management plan is in place they are frequently just a paper exercise with no implementation. While the PIP maps hold huge potential, a map is only as effective as its use. Compliance will require strict enforcement with stiff penalties for breaches. What rules, regulations and actions will be put in place for effective use of PIP maps to achieve legally compliant outcomes?

Recommendations

- We would recommend that the requirement for nutrient management planning be applied to all farmers, starting with all landowners in the most highly nutrient enriched and at risk catchments. These nutrient plans should be spatially based on the PIP maps. While we recognise that ground truthing of the PIP maps will be necessary, applying the precautionary principle would be appropriate here given the huge water quality declines as a result of agriculture. This would mean that until such a time as those areas are proven to not be critical source areas, they would be excluded from slurry and fertiliser spreading.
- Nutrient management plans should result from modelling work to determine the level of N which can be safely applied in order to reach the EPA reduction targets. That allocation should then be spatially targeted in keeping with the nutrient management plan and the PIP maps.

6. Grazing platform and urine patches

The grazing platform is a key issue for the NAP. We are aware of anecdotal reports of excess slurry being spread on the home farm, with little or none being spread on other patches of farmland, or silage fields. As a result of this type of practice, the nutrient load on the home farm would not be compliant with the Nitrates Directive.

It is vital that slurry and fertiliser are spread evenly across the whole land holding in order to abide by the kg/N/Ha threshold. Enforcement is required to address this, but at the very least, mapping exercises should be carried out to ensure that unsuitable land is clearly identified, as some will clearly be inaccessible to slurry spreading machinery, particularly the larger LESS equipment. Again anecdotal reports indicate that many of the additional land parcels are on steep ground which would be inaccessible to machinery. This land should be zoned ineligible for land spreading, and removed from the kg/N/Ha calculation.

Additionally, we note that in the Teagasc document[15], in section 3.3.3 the following is outlined:

> *"Approximately 20% of surplus N (48 kg N/ha/year) in the baseline farm (Scenario 1) was leached in the form of nitrate (Table 3.3). Approximately, 30 kg of this N loss originated from urine deposited in paddocks..."*

It is unclear to us how this urine deposition is to be handled in regard to nitrate loads in high grazing platform farms. While the slurry and fertiliser should, in theory, be spread over

[15] Teagasc (2021) The Impact of Nitrogen Management Strategies within Grass Based Dairy Systems

the entire landholding to bring the farm into compliance with the Nitrates Directive, the urine patches in the grazing paddock will clearly deposit a substantial nitrate load on a relatively small area. As outlined in the above excerpt, these urine patches can be responsible for as much as 62% of nitrate leached in the Teagasc[16] modelling scenario for a farm operating under the current regulations. There is no indication of how this will be mitigated for under the new GAP regulations. This issue must be addressed to prevent excess leaching.

Recommendation

- We would recommend that modelling be carried out to determine the volume of nitrogen deposited by the herd when they're at pasture. The length of the grazing window should then be limited by the N threshold (<170 kg/N/ha). Once that is reached, the cattle should be moved to a different pasture or indoors.

7. Compliance

The consultation document clearly outlines the low levels of compliance with the GAP regulations, but does not outline any meaningful way to address this. Lack of compliance and enforcement renders the GAP regulations meaningless, and An Taisce would observe that any overhaul of the GAP regulations will not achieve the desired outcome if landowners are not rigorously implementing them. It's an exercise in futility.

Clearly a bottom up and top down approach is needed. We would strongly recommend that the penalties for breaching the GAP regulations be substantial enough to act as a serious deterrent. Those landowners in breach of the GAP regulations, through actions such as spreading slurry in the closed season, are undermining the efforts of other landowners.

Recommendation

- We would recommend that an awareness raising campaign be launched, including highlighting new increased penalties, and consideration be given to the establishment of a confidential reporting mechanism for members of the public. There will never be enough inspectors to cover the whole country, but on the ground reporting by neighbouring landowners could prove invaluable in this case. Extra resources could then be allocated to following up on those reports, to ascertain the veracity of the claims.

8. Soiled water

[16] Teagasc (2021) The Impact of Nitrogen Management Strategies within Grass Based Dairy Systems

While we welcome implementation of closed periods for soiled water, we note that the closed period is shorter than for slurry spreading. Given the potential high nutrient content of these soiled waters, and the significant water quality issues which already exist in much of the country, the scientific rationale for this is unclear. If soil is deemed too waterlogged or inert to absorb slurry, the same physical limitations surely apply to soiled water.

Additionally, it is unclear to us how the required 4 weeks of storage will be sufficient for a proposed 2 month closed period, particularly with fluctuating rainfall patterns as a result of climate breakdown. We are experiencing periods of unseasonably heavy rainfall events, which in many cases may result in increased soiled water volumes, and as such this must be factored into any storage requirements. Any new regulations should be climate and future proofed.

Recommendation

- We would recommend the restricted period for soiled water spreading be temporally aligned with that for slurry spreading, and the storage capacity for soiled waters be sufficient, taking into consideration changing weather patterns.

9. Ammonia

We note that one of the recommendations for the new GAP regulations relates to slurry storage:

> *"All existing external slurry stores should be covered as soon as practically possible, but no later than 31st December 2027"*

While we welcome the requirement to cover slurry stores, failing to implement this until the end of 2027 will result in at least 6 more years of non-compliance with the National Emission Ceilings Directive. Ammonia has significant health and biodiversity impacts, and while we appreciate the necessity for time to implement this measure, interim measures should be taken to reduce ammonia emissions in the short term, for example through stocking decreases until the necessary measures are in place to mitigate the ammonia emissions from the volumes of slurry being produced.

The increased roll-out of LESS is welcome, but we would observe that the consultation document appears to suggest the rollout of LESS will result in us meeting our '*ammonia and Agclimatise targets'.* While it will certainly move us closer to compliance, it will not be enough to achieve the legally binding limits, and this should be acknowledged by the

Department. Landowners should not be given a false sense of security that buying into LESS will entirely resolve the ammonia issue.

Recommendation

- Interim measures for the reduction of ammonia should be implemented until the infrastructure and measures needed to meet legally binding ammonia thresholds are in place, if such an outcome is even plausible. Stock reduction is a clear means to effectively reduce ammonia emissions.

10. Drinking water source protection

We would highlight that, along with considering N and P impacts on water courses, the NAP should also consider measures to reduce the public health impacts from microbial pathogens, such as cryptosporidium, sediment and pesticides arising from agricultural activities. Spatially targeted buffer zones should form part of the NAP, to protect drinking water and bathing water from pathogens. The National Federation of Group Water Schemes has done extensive work on this, and the recommendations in their handbook[17] should be considered as part of the new NAP and GAP regulations.

11. Summary of Recommendations

1. We recommend that Ireland should not seek a further derogation, as water quality data indicates that to date we clearly do not have the necessary safeguards in place, nor are they proposed in the consultation documentation for the next NAP.
2. Model the exact load reduction as a result of measures proposed in the new NAP to clearly demonstrate that they will result in the load reductions the EPA has indicated are necessary. Set reducing limits on total N (fertiliser and feed) imported inputs into catchments.
3. Increases in phosphorus application/build-up should be determined on a case by case basis, with a reliance on the latest EPA data and their PIP maps to indicate potential risk based on soil type and pathway analysis.
4. The timeframe for banding should be clearly outlined, and expedited.
5. The requirement for nutrient management planning should be applied to all farmers, starting with all landowners in the most highly nutrient enriched and at-risk catchments. These nutrient plans should be spatially based on the PIP maps.
6. Nutrient management plans should result from modelling work to determine the level of N which can be safely applied in order to reach the EPA reduction targets. That

[17] NFGWS (2020) A Handbook of Source Protection and Mitigation Actions for Framing

allocation should then be spatially targeted in keeping with the nutrient management plan and the PIP maps

7. Modelling should be carried out to determine the volume of nitrogen deposited by the herd when they're at pasture, particularly in regard to urine patches. The length of the grazing window should then be limited by the N threshold (<170 kg/N/ha).
8. An awareness raising campaign should be considered, including highlighting new increased penalties, and the establishment of a confidential reporting mechanism.
9. The restricted period for soiled water spreading should be temporally aligned with that for slurry spreading, and the storage capacity for soiled waters be sufficient, taking into consideration changing weather patterns.
10. Interim measures for the reduction of ammonia should be implemented until the infrastructure and measures needed to meet legally binding ammonia thresholds are in place.
11. Drinking and bathing water protection from pathogens should form an integral part of the new NAP and GAP regulations.

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Elaine McGoff, PhD

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