Nitrates Action Programme 2019-2022

Department of Agriculture, Environment and Rural Affairs (DAERA)

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Presentation

- Overview of Nitrates Action Programme (NAP) and Review
- Actions to support NAP and Water Quality
- Water Quality

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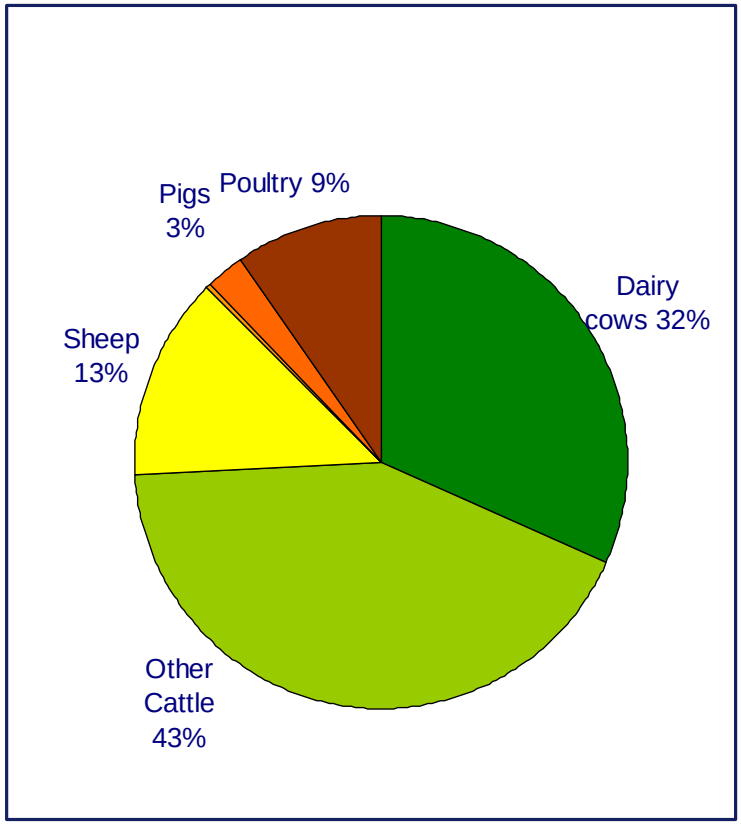
Agriculture in Northern Ireland 2017

Agriculture and grassland dominate land area of Northern Ireland

Land Use (m ha)

• Total land area	1.36	
• Total area farmed	1.01	(75%)
- Grass/rough grazing	0.93	(92%)
- Cereals	0.04	(4.0%)
- Other crops/hort.	0.01	(1.0%)
- Woods/plantations	0.01	(1.0%)

Manure Organic N Production in Northern Ireland



- **In 2016 average manure N rate was 119 kg N/ha**
  - **Rate based on area of crops and grass** (See Note)
  - **Rate in 2012 was 117 kg N/ha**
  - **Rate in 2006 was 121 kg N/ha**
- **Cattle account for 75% of total manure N**

Note:

Organic N rate based on total agricultural area including rough grazing is 103 kg N/ha.

Implementation of the Nitrates Directive in Northern Ireland

- Total territory approach to implementation
- The 1st Nitrates Action Programme Regulations to apply to all of Northern Ireland came into force on 01 January 2007
- Reviews and Revisions
  - NAP 2 in 2011
  - NAP 3 in 2015
- The current Nitrates Action Programme Regulations (NAP 3) came into force on 1 January 2015

Implementation of the Nitrates Directive in Northern Ireland

- In support of the Action Programme, Regulations restricting the application of chemical fertilisers containing phosphorus to crop requirement have applied from 1 January 2007

- Regulations on construction standards of manure storage on farm have applied from 2003. Now included in NAP 3 Regulations

Key Measures in Current Action Programme

- Livestock manure storage requirements (26 weeks for pigs and poultry, 22 weeks for other livestock)

- Closed periods for N fertiliser application to land

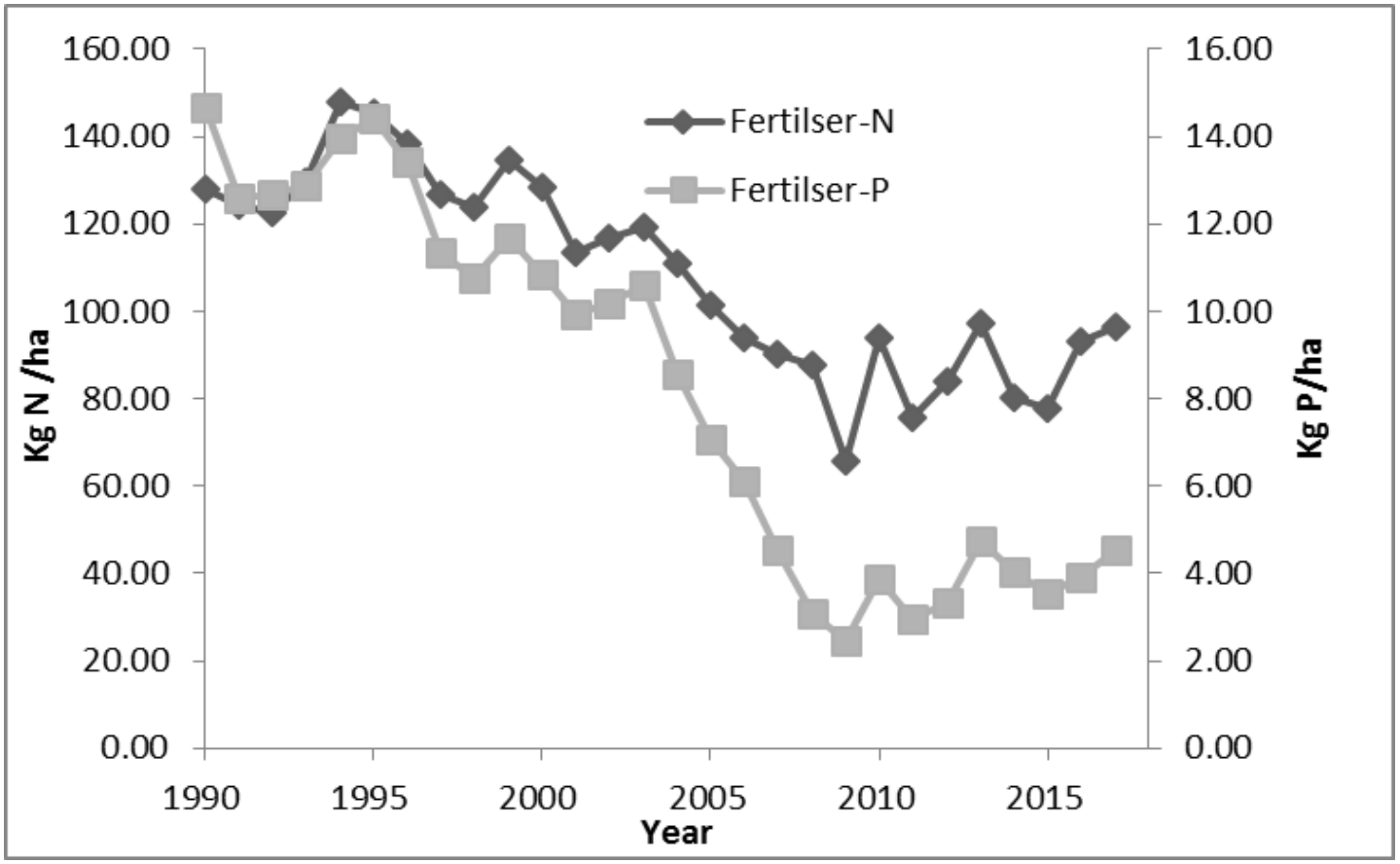
  - chemical - 15 September to 31 January,
  - farmyard manure - 31 October to 31 January,
  - other manures - 15 October to 31 January

- Limit application of livestock manure to 170 kg N/ha/year

Key Measures in Current Action Programme

- Land application restrictions for N fertiliser (waterlogged/frozen/flooded ground, steep slopes, forecast of rain, buffer distances from waterbodies)
- Limits on N fertiliser to crop requirements
- Land management - crop and soil management to minimise erosion
- Record keeping

Trends in Rates of Chemical N and P fertiliser use 1990-2017



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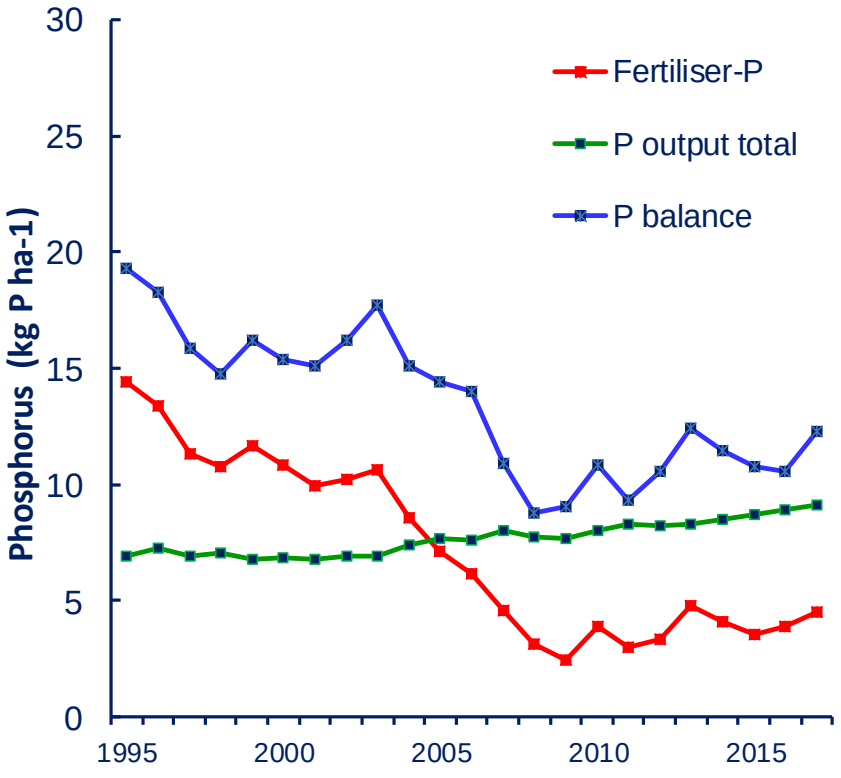
Phosphorus Inputs and Outputs 1995 to 2017



Rates based on area of crops and grass

P fertiliser use in 2017 = 4.5 kg P ha^{-1}

- Average 2015 - 2017 = 4 kg Pha^{-1}
- 32% lower than 2005 - 2007 average
- From 1995 to 2017 P fertiliser use has declined by 9.9 kg Pha^{-1}
- P efficiency has increased from 26% in 1995 to 42% in 2017
- From 1995 to 2017 P balance has declined by 7 kg/ha

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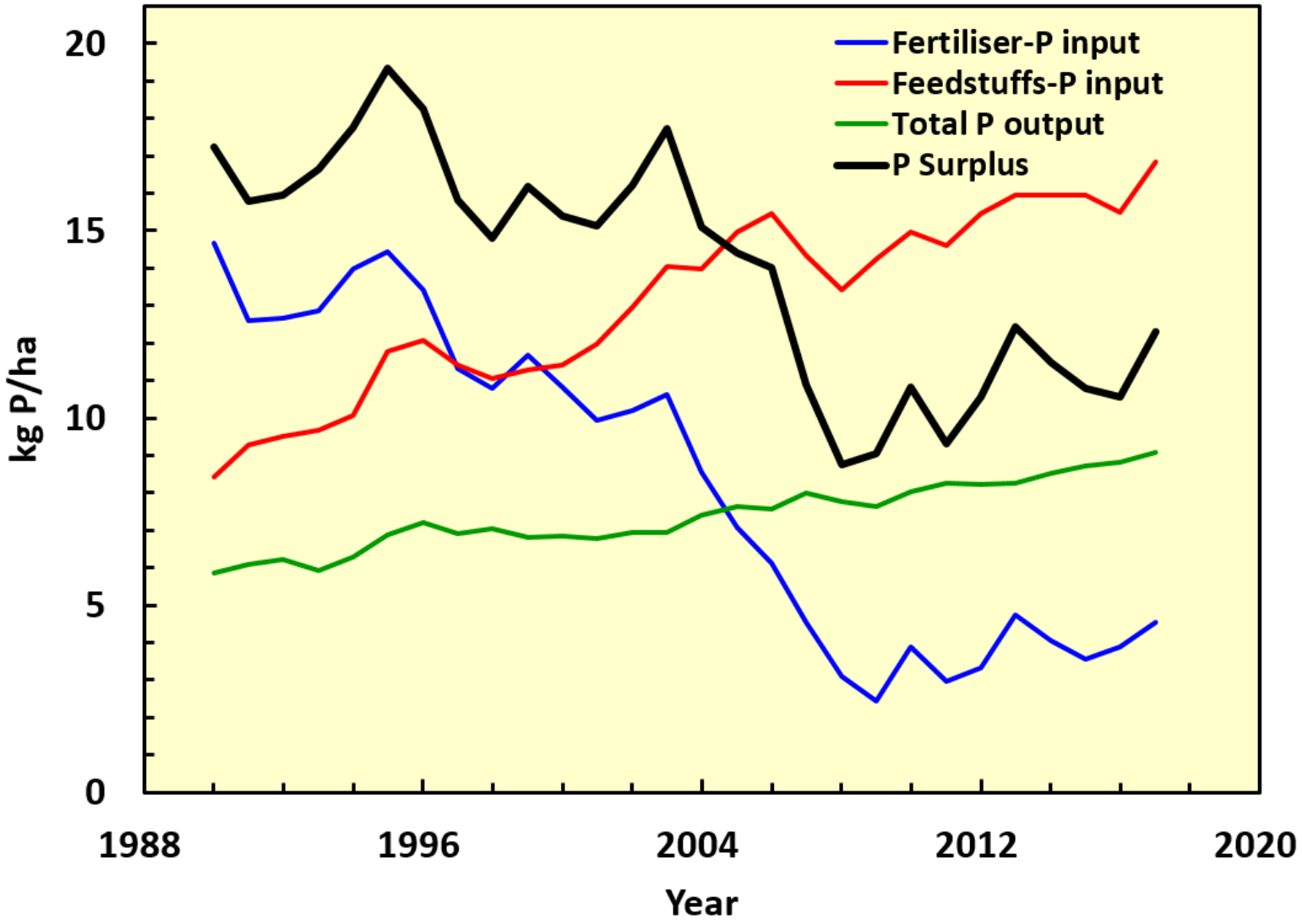

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DAERA Advice and Support

Advice and support for farmers provided by DAERA College of Agriculture, Food and Rural Enterprise

- Training workshops
- Guidance booklets
- One to one advice on request
- FAS Newsletter
- Online nutrient calculators

Nitrates Action Programme 2015-18 & Phosphorus Regulations

- Quick reference guide for farmers
- A3 size wall chart
- Summary of requirements

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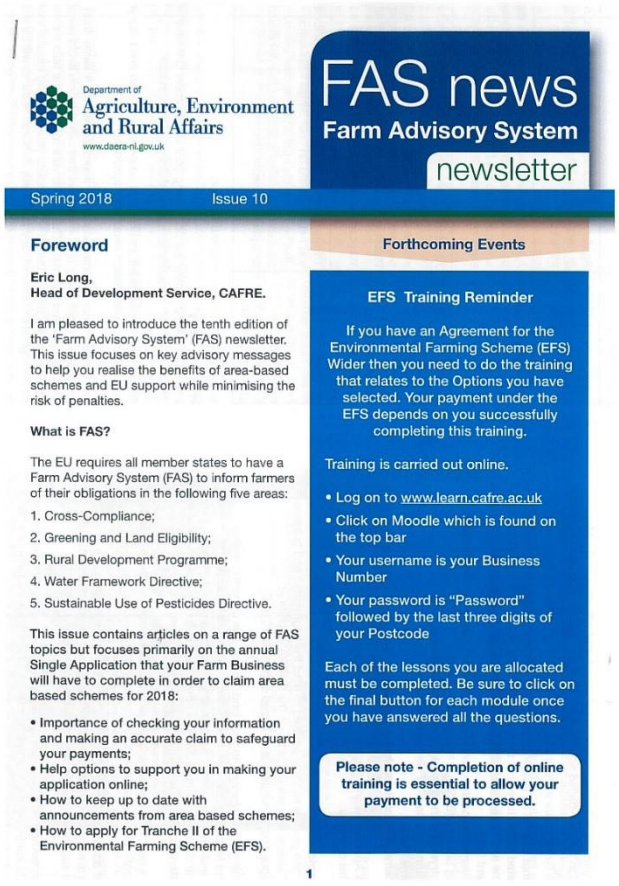
Farm Advisory System (FAS) News



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FAS news
Farm Advisory System
newsletter

Spring 2018 Issue 10

Foreword

Eric Long,
Head of Development Service, CAFRE.

I am pleased to introduce the tenth edition of the 'Farm Advisory System' (FAS) newsletter. This issue focuses on key advisory messages to help you realise the benefits of area-based schemes and EU support while minimising the risk of penalties.

What is FAS?

The EU requires all member states to have a Farm Advisory System (FAS) to inform farmers of their obligations in the following five areas:

1. Cross-Compliance;
2. Greening and Land Eligibility;
3. Rural Development Programme;
4. Water Framework Directive;
5. Sustainable Use of Pesticides Directive.

This issue contains articles on a range of FAS topics but focuses primarily on the annual Single Application that your Farm Business will have to complete in order to claim area based schemes for 2018:

- Importance of checking your information and making an accurate claim to safeguard your payments;
- Help options to support you in making your application online;
- How to keep up to date with announcements from area based schemes;
- How to apply for Tranche II of the Environmental Farming Scheme (EFS).

Forthcoming Events

EFS Training Reminder

If you have an Agreement for the Environmental Farming Scheme (EFS) Wider then you need to do the training that relates to the Options you have selected. Your payment under the EFS depends on you successfully completing this training.

Training is carried out online.

- Log on to www.learn.cafre.ac.uk
- Click on Moodle which is found on the top bar
- Your username is your Business Number
- Your password is "Password" followed by the last three digits of your Postcode

Each of the lessons you are allocated must be completed. Be sure to click on the final button for each module once you have answered all the questions.

Please note - Completion of online training is essential to allow your payment to be processed.

1

- 3 issues per year
- Sent to all farmers
- Each issue includes a Water Quality article

Nitrates Action Programme (NAP) Summary

Summary of Nitrates Action Programme (NAP) 2015-2018 and Phosphorus Regulations

(Measures in blue show changes from the 2011-2014 Nitrates Action Programme and 2006 Phosphorus Regulations)

Nitrates Action Programme 2015-2018 Legal Requirements and Cross Compliance Verifiable Standards	
Closed Spreading Periods	• Chemical nitrogen and phosphorus fertiliser must not be applied to grassland from midnight 15 September to midnight 31 January. • All types of chemical fertiliser must not be applied to arable land from midnight 15 September to midnight 31 January, unless there is a demonstrable crop requirement. • Organic manures, including slurry, poultry litter, digestate, sewage sludge and abattoir waste, must not be applied from midnight 15 October to midnight 31 January. • Farmyard manure (FYM) must not be applied from midnight 31 October to midnight 31 January. • There is no closed spreading period for dirty water.
Land Application Restrictions	• All fertilisers, chemical and organic and including dirty water, must not be applied: - on waterlogged soils, flooded land or land liable to flood; - on frozen ground or snow covered ground; - if heavy rain is falling or forecast in the next 48 hours; - on steep slopes (with an average incline of 20% or more on grassland or 15% or more on all other land) where other significant risks of water pollution exist. Risk factors to be considered include the proximity to waterways, the length of time to incorporation, the type and amount of fertiliser being applied and / or the soil and weather conditions. - on less steep slopes (with an average incline of 15% or more on grassland or 12% or more on all other land), organic manures must not be applied within 30m of lakes and 15m of other waterways; chemical fertilisers must not be applied within 10m of lakes and 5m of other waterways. • Prevent entry of fertilisers to waters and ensure application is accurate, uniform and not in a location or manner likely to cause entry to waters. • All types of chemical fertiliser must not be applied within 2m of any waterway. • Organic manures including dirty water must not be applied within:- - 20m of lakes; - 50m of a borehole, spring or well; - 250m of a borehole used for a public water supply; - 15m of exposed cavernous or karstified limestone features; - 10m of a waterway other than lakes; this distance may be reduced to 3m where slope is less than 10% towards the waterway and where organic manures are spread by bandspreaders, trailing shoe, trailing hose or soil injection OR where adjoining area is less than 1 ha in size OR not more than 50m in width. • Application rates:- - No more than 50m³/ha (4500 gal/ac) or 50 tonnes/ha (20t/ac) of organic manures to be applied at one time, with a minimum of 3 weeks between applications; - No more than 50m³/ha (4500 gal/ac) of dirty water to be applied at one time, with a minimum of 2 weeks between applications. • Slurry can only be spread by inverted splashplate, bandspreaders, trailing shoe, trailing hose or soil injection. • Dirty water to be spread by same methods as slurry and by irrigation. • Sludgigators must not be used.
Livestock Manure Nitrogen Limits	• 170kg nitrogen/ha/year farm limit. • Farms with at least 80% grassland may apply annually by 1 March to NIEA for a derogation to permit the land application of up to 250kg nitrogen/ha/year from grazing livestock manure. Additional conditions and Cross-Compliance verifiable standards will apply. Further guidance is available from NIEA.

Nitrates Action Programme 2015-2018 Legal Requirements and Cross Compliance Verifiable Standards	
Overall Nitrogen (N) Fertiliser Limits	• Maximum kg N/ha on grassland (apart from nitrogen in livestock manure): - Dairy farms* 272 (8 ¼ bags**/ac) - Other farms 222 (6 ¾ bags**/ac) (When applying chemical nitrogen fertiliser, nitrogen from organic manures other than livestock manure and anaerobic digestate containing digested livestock manure must be subtracted). • For non-grassland crops, maximum nitrogen applied (from all types of fertiliser, including livestock manure) must not exceed crop requirement and, for certain arable crops, an N-Max limit applies to the total crop area. **More than 50% of nitrogen in livestock manure comes from dairy cattle.* ***Approximate number of 50kg bags of a 27% nitrogen type chemical fertiliser.*
High Phosphorus Manures	• From 1 January 2017, organic manure with more than 0.25 kg of total phosphorus per 1 kg of total nitrogen (e.g. some anaerobic digestates) can only be applied where soil analysis shows there is a crop requirement for phosphorus.
Livestock Manure and Silage Effluent Storage Requirements	• 26 weeks livestock manure storage capacity for pig and poultry enterprises. • 22 weeks for other enterprises. • When certain criteria are met there are allowances for out-wintering, animals on bedded accommodation, separated cattle slurry, renting additional tanks, poultry litter stored in a midden or field heap and exporting manure to approved outlets. • Livestock manure and silage effluent storage must be maintained and managed to prevent seepage or run-off. • Silage and slurry stores constructed or substantially modified after 1 December 2003 must comply with certain construction standards (set out in the NAP Regulations) and be notified to NIEA at least 28 days before they are brought into use • Silage bales must be stored at least 10m from any waterway and stored and managed in such a way as to prevent seepage into the waterway. • FYM and poultry litter storage:- - both may be stored in middens with adequate effluent collection facilities. - both may be stored in a field heap where they are to be applied for a maximum of 120 days. - field storage of poultry litter is subject to authorisation by NIEA • FYM and poultry litter field heaps must not be stored:- - in the same location of the field year after year; - within 50m of a borehole, spring or well; - within 250m of a borehole used for a public water supply; - within 50m of exposed cavernous or karstified limestone features; - on land that is waterlogged, flooded or likely to flood. • FYM field heaps must not be stored within 20m of any waterway and 50m of lakes. • Poultry litter field heaps must not be stored within 100m of lakes and 40m of a waterway. • Poultry litter field heaps must be covered with an impermeable membrane as soon as possible and within 24 hours of placement in the field. • Provide storage for dirty water during periods when conditions for land application are unsuitable.

Nitrates Action Programme 2015-2018 Legal Requirements and Cross Compliance Verifiable Standards	
Land Management	• From harvest of certain crops until 15 January of the following year, the controller must manage the land to ensure minimum soil cover and to minimise soil erosion and nutrient run off. • Residues of crops harvested late must be left undisturbed until just before sowing the following spring.
Record Keeping	• Agricultural area, field size and location. • Cropping regimes and areas, Soil Nitrogen Supply (SNS) index for crops other than grassland. • Livestock numbers, type, species and time kept. • Organic and chemical fertiliser details including imports and exports. • From 1 January 2017 - evidence of a crop phosphorus requirement from soil analysis if organic manure with over 0.25kg total phosphorus per 1 kg total nitrogen is applied. • Storage capacity and, where applicable, details of rental agreements, authorisation to store poultry litter in field heaps and associated evidence to support allowances to reduce capacity. • Evidence of control over the agricultural area (including controllers' agreements) and the right to graze common land. From 2015 you will not need to keep controller agreements, but you will still need to produce them for the calendar years 2010-2014 if selected for an inspection. *Many of these records already exist on farms, for example, SAF/IACS forms, farm maps, herd and flock records and fertiliser receipts. Nitrogen and phosphorus requirements for grassland are set out in the NAP and Phosphorus Regulations. Nitrogen and phosphorus requirements for other crops should be determined using the DEFRA Fertiliser Manual (RB209). Records must also be kept for the Phosphorus Regulations (see below).* • Records to be ready by 30 June each year for period 1 January to 31 December of previous year. • Records to be available for inspection from previous five calendar years. • Records relating to the export of organic manure to be submitted annually to NIEA by 31 January of the following year. • If you are operating under an approved derogation, you must keep your fertilisation plan on farm and have it ready for inspection by 1 March for that calendar year. Your fertilisation account for the previous calendar year must be submitted to NIEA by 1 March.
Compliance with a Notice	• Enforcement Notices issued under the NAP Regulations must be complied with.

Phosphorus Regulations Legal Requirements
Compliance with the Phosphorus Regulations is a legal requirement but is not a verifiable standard under cross compliance:- • Chemical fertilisers containing phosphorus must only be applied where soil analysis shows a crop requirement. • Records must be kept to demonstrate this. • New values for phosphorus recommendations for grassland and phosphorus availabilities for organic manures. • Enforcement Notices issued under the Phosphorus Regulations must be complied with.

Full details of all measures can be found in the NAP Guidance Document 2015-2018 and at www.dardni.gov.uk and www.doeni.gov.uk/niea/

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NAP Guidance and Workbook

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Derogation Guidance, Fertilisation Plan and Fertilisation Account

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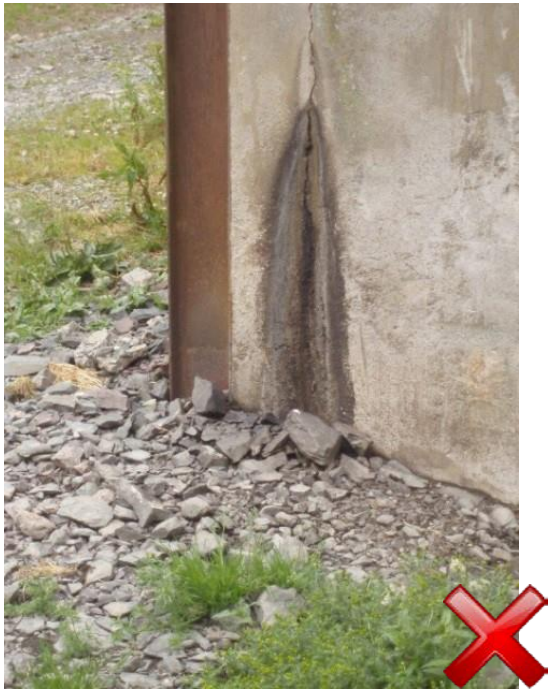
Examples from NAP Guidance Booklet

Silage clamp with well maintained channels draining to effluent tank

Overflowing effluent tank not being maintained

Well maintained silage clamp



Leaking silage clamp

Well maintained above ground slurry tank

Freeboard on above ground slurry tank not being maintained

Slurry in Yard Areas

Removal of slurry from yard areas will reduce the need to store slurry

- Run-off from **unbrushed** areas would produce slurry
- **Brushed** areas would produce dirty water

- Non-spread – distances from Waterways
- Information Sticker for Tractor Cabs
- Produced by Farmers Union – Partnership Working

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Farm Nutrient Management Scheme (FNMS)

- In support of NAP 1 - completed in Dec 2008
- 60% grant aid for the construction of additional slurry/manure storage to meet livestock manure storage requirements
- Over 3,900 projects completed
- Over €220m investment in improved storage facilities
- Grant support of €133m, industry investment exceeded €87m

Manure Efficiency Technology Scheme (METS)

- Provided 40% grant aid for advanced slurry spreading equipment - trailing hose, trailing shoe or shallow injector.
- 307 machines funded
- €7m total investment
- Support continues under NIRDP Farm Business Improvement Scheme (FBIS)
- 55 Machines funded in 2017

Sustainable Use of Poultry Litter (SUPL) Project

Phase 1 – SBRI – Research Stage

- 9 projects funded
- Proof of concept stage to identify new processes

Phase 2 – SUPL Loan Scheme

- Two full scale processing plants supported
- 40% loan funding
- Total investment - €50 million

(SUPL) Project (Contd)

- Stream Bio-Energy
  - "Modified" Anaerobic Digestion process
  - Feedstock – 100% Poultry Litter
  - Capacity 40k Tonnes/Year
  - Phosphorus in Fibre Fraction exported

- Glenmore
  - Conventional Anaerobic Digestion process
  - Range of Organic Feedstocks
  - 25k Poultry Litter/Year
  - Bio Gas supplied to Engineering Companies

Derogation

In February 2015, UK was granted a renewal of derogation for Northern Ireland:

- To apply up to 250kg N/ha/year grazing livestock manure
- Eligible farms must have greater than 80% of farm area as grassland
- A mandatory P balance on derogated farms to ensure no detrimental effect on water quality

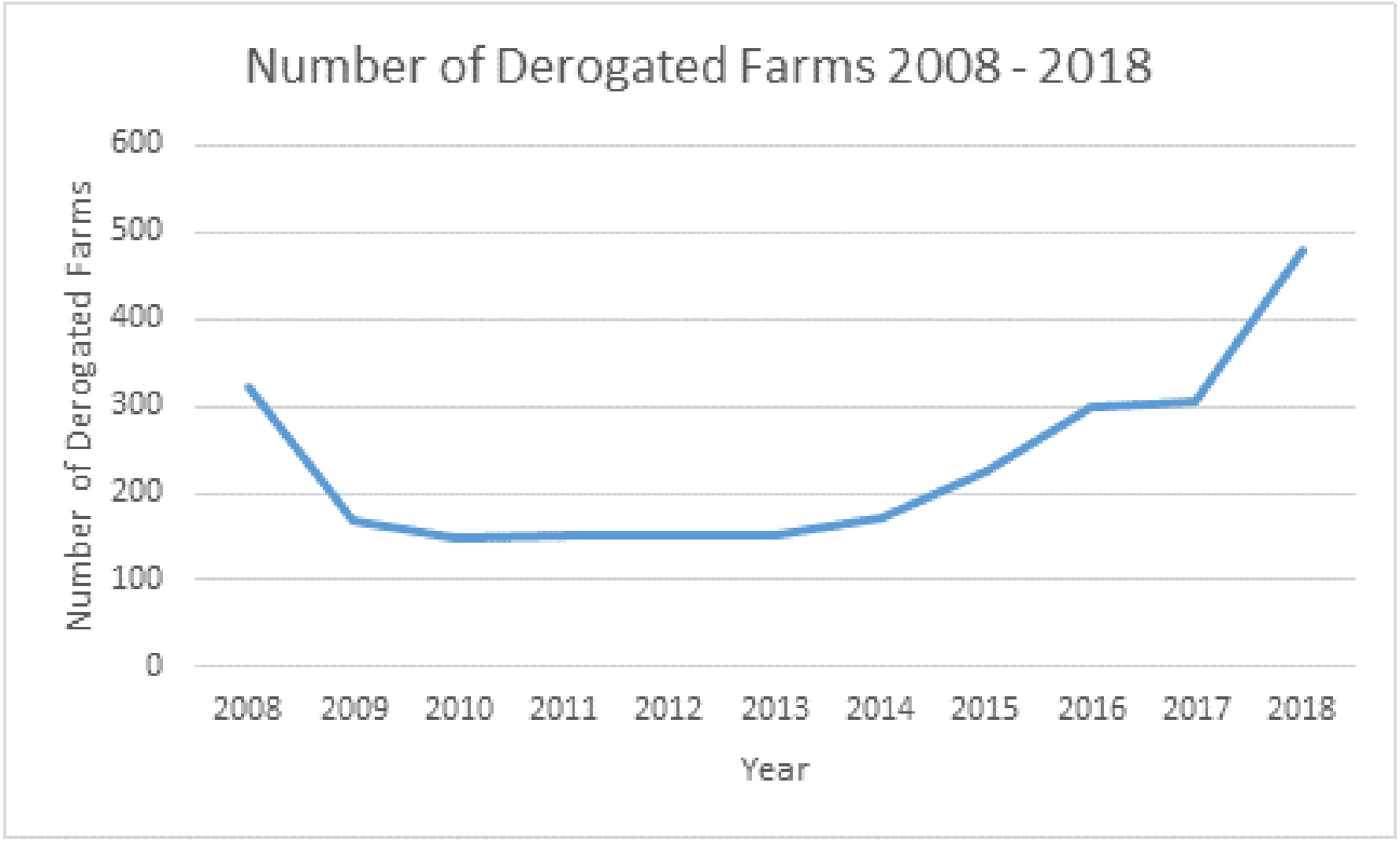
Scientific Case for Derogation for Northern Ireland

- Primary land use is grassland
- Excellent grass growing conditions
- (yield potential 10 - 15 t DM per ha)
- High N uptake from grassland
- High soil organic matter (and N content)
- Efficient grass–based livestock systems (UME output up to 135 GJ/ha)

Derogation

Farmers must:

- Apply annually;
- Have a fertilisation plan on farm by 1 March;
- Submit a fertilisation account for previous year; and,
- Not exceed 10 kg P/ha/year phosphorus balance
- New online application process introduced 2018



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Derogation – Comparison with Other Countries

Country	No of Farms	% of Total Farms	% Agricultural Area
Rep of Ireland	6,802	5.4%	9.3%
Denmark	1,466	-	8.6%
Netherlands	19,564	-	47%
Northern Ireland	478	1.9%	4%

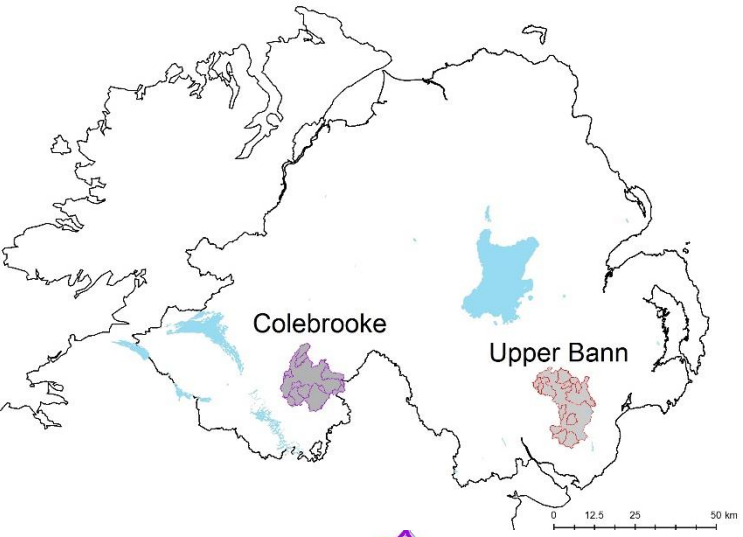
Research and Development Programme

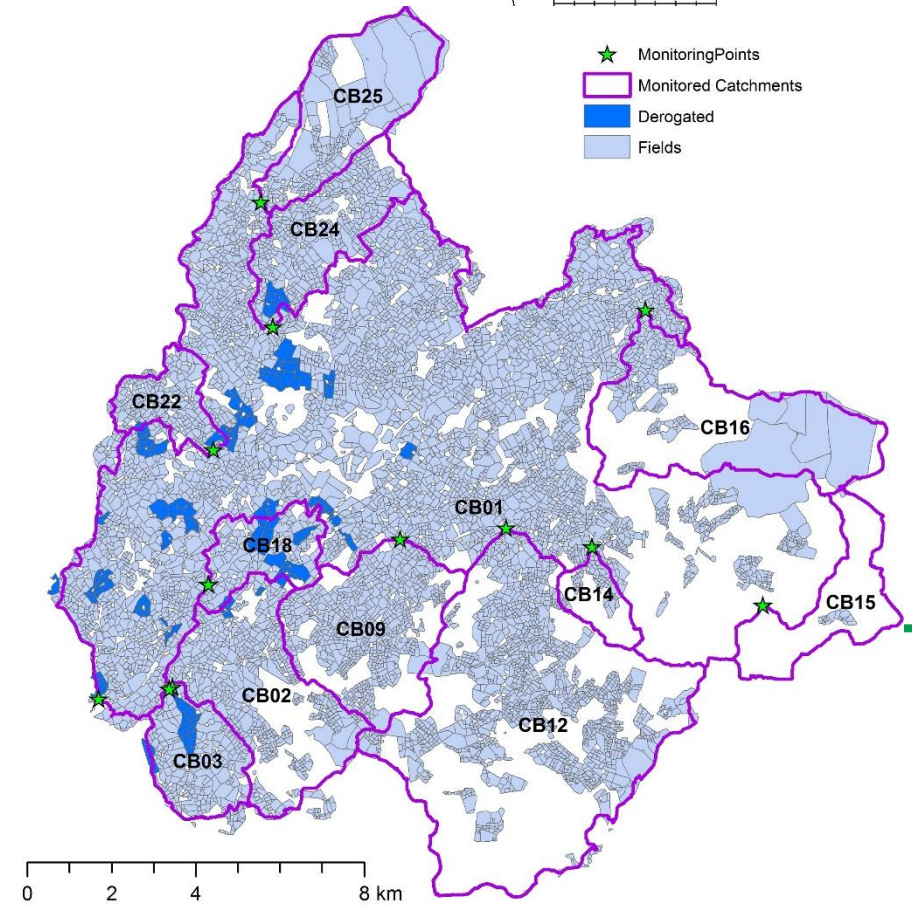
Under articles 8.2 - 8.4 of the NI Derogation decision of February 2015, the NI authorities are conducting research to underpin the Nitrates Action Programme (NAP) – including:

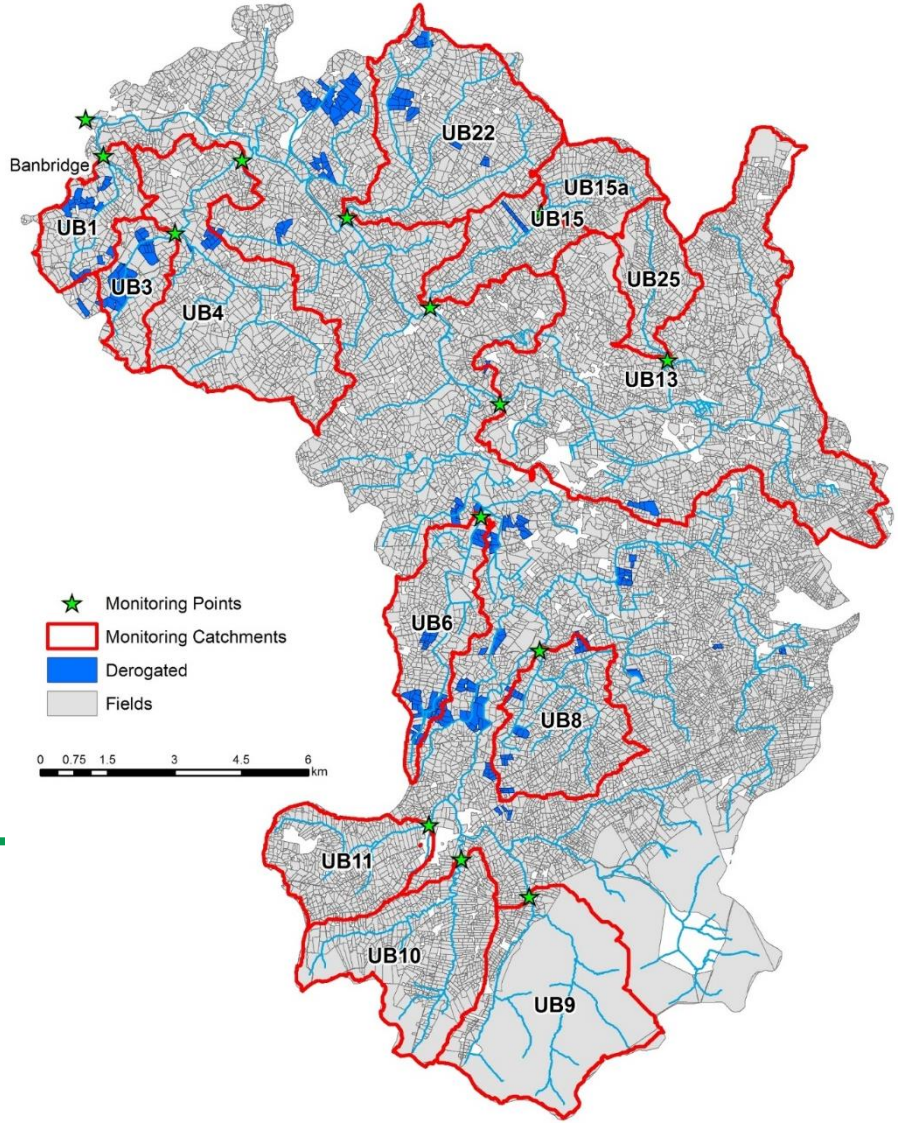
- Monitoring of farms covered by the NAP and Derogation
- Monitoring of shallow groundwater, drains and streams on farms
- A detailed scientific study on intensive grassland systems in order to improve nutrient management
- Intensive water monitoring in agricultural catchments located in proximity to the most vulnerable lakes

NAP E&I (16/4/03)

Water quality monitoring (fortnightly) sub-catchments of the Upper Bann (n=13) and Colebrooke (n=12).







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Summary of NAP Research Outcomes to date:

- Improved water quality monitoring is providing better insights into nutrient mobilisation and transport in the catchments
- Soil tests, Nutrient management planning (feeds, manures and silage), Farm surveys, P and N Balances inform on farm practices
- Complementary ecological monitoring has started in the catchments (E&I Project 17/4/01)
- The EAA Soil Sampling and Analysis scheme has measured soil nutrients and modelled P risk (LiDAR) for 500 farms across catchment
- Water quality, soil and farm nutrient data sets are being used to develop catchment scale models.

Improving Water Quality

- Regulation - NAP and Phosphorus Regulations
- Advice and Knowledge Transfer
- Partnership Working
- Financial Support: SUPL, FBIS, EFS, etc…

Water Quality – key facts

- Water quality has improved after NAP introduced
- Long term trends show reductions achieved in Nitrogen and Phosphorus
- Water quality has stabilised in recent years with improvement and declines being offset
- Targeted and partnership approach will be needed to achieve further improvement

Nitrates Action Programme (NAP) Review

Scientific Review Group

- DAERA, NI Environment Agency (NIEA), Agri Food & Biosciences Institute (AFBI)
- 3rd review of NI NAP
- NAP in place 2007
- Strong NAP but some scope for improvement

Nitrates Action Programme (NAP)

Proposed NAP 2019 – 2022

- Retain all existing NAP measures
- Additional measures to address emerging issues
- Some longer term measures – develop during NAP 4 2019 to 2022

Actions to support NAP 4
&
Improve Water Quality

- Environmental Farming Scheme
- Soil sampling and analysis schemes
- Farm Advisory Service
- Ammonia Action Plan

Actions to support NAP 4
&
Improve Water Quality

- Conservation Management Plans for freshwater SACs (Special Areas of Conservation, Natura 2K)
- Catchments projects – INTERREG
- Co-operative projects – including water companies, Rivers Trust and farmers
- Establishment of “Irish Nutrient Sustainability Platform” in 2019

Research

- NAP and Derogation monitoring and modelling
- Lough Neagh – Phosphorus release from sediments
- Factors affecting ecological recovery of freshwaters
- Sustainable management of manure nutrients
- Decision support tools for nutrient management

Environmental Farming Scheme (EFS)

EFS water quality measures aim to prevent direct run off of nutrients and sediment erosion to rivers:

- Creation of Riparian Buffer Strips – 4 options
- Riverbank Fencing
- Pasture pumps, drinking troughs and pipe work.

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Benefits of Water Quality Measures

- Act as barriers to prevent livestock entering rivers, breaking down banks and slow the flow of surface run off.
- Reduce the potential for nutrients and sediment entering waterways.
- Greatest impact in areas of intensive grassland where soil type, rainfall, ground conditions and the level of farming activity most likely to lead to nutrient run off.
- Will contribute to improving WFD status.

Uptake of Water Quality Measures

- 2017 uptake

  - 529 km of rivers protected
  - Expenditure €4.4m
  - 55% of farmers in EFS implementing water quality measures

Uptake of Water Quality Measures

- 2018 uptake
  - 900 km rivers protected
  - Expenditure €7.2m (estimated)
  - 70% of farmers in EFS implementing water quality measures

- Further applications in 2019 and 2020
- Total target intake of 5,200 farmers

Timeline

- Stakeholder Consultation – February and March 2019
- Finalise NAP Regulations – March 2019
- EU Nitrates Committee 27 March 2019

Post Consultation proposals subject to discussion with Commission and NI Government approval process

Thank you