



Department
for Environment
Food & Rural Affairs

www.gov.uk/defra

Consultation on new basic rules for farmers to tackle diffuse water pollution from agriculture in England

September 2015



© Crown copyright 2015

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v.3. To view this licence visit www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ or email PSI@nationalarchives.gsi.gov.uk

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us by email to farmlandwater@defra.gsi.gov.uk

Contents

1 Overview - what is this consultation about?	1
2 Proposed new basic rules for all farmers to tackle diffuse pollution with a focus on phosphorus	2
3 Details of the proposed basic rules	6
4 Costs and benefits	12

Consultation on new basic rules for farmers to tackle diffuse water pollution from agriculture in England

1 Overview - what is this consultation about?

1.1 The Government's commitment to sustainable agriculture and improving the environment is delivered through a range of tools, initiatives and best practice. These aim to protect and improve the water environment and support competitive agriculture.

1.2 We need a combination of different actions to tackle agricultural diffuse pollution of water effectively. Some action will happen as a result of advice and incentives such as through the new Countryside Stewardship scheme, or through industry-led or water company action. Other actions will result from regulation or through innovation.

1.3 This consultation is of direct interest to farmers, farm advisers and contractors, and is of interest to environmental organisations and water and sewerage companies.

1.4 We are seeking views on the introduction of a small number of new basic rules for farmers through legislation which will improve the efficiency of farms and help to reduce water pollution from agriculture, with a focus on phosphorus. These rules are intended to be clear and simple, and will be supported by advice. They will not be part of cross-compliance.

1.5 We welcome your views on these proposals. As well as considering which basic rules should apply, we would also welcome comments on how to implement them.

1.6 This consultation will help us to develop the best way forward and will inform the decision by Government. If the proposals are taken forward our aim would be to introduce legislation during 2016/17.

2 Proposed new basic rules for all farmers to tackle diffuse pollution with a focus on phosphorus

What is diffuse water pollution and why do we want to prevent it?

2.1 Diffuse pollution can come from many sources including roads, houses, commercial areas and farmland. It can run off the land into rivers and lakes or seep through the ground into groundwater. These may be small individually but collectively can be damaging to our rivers, lakes, freshwater fisheries, our drinking water and our beaches.

2.2 Farming naturally has an impact on the water environment and many farmers already take action to reduce this impact. We need to do more if we are to protect and improve our water environment and conserve all the benefits it gives us.

2.3 The pollutants of most concern include the nutrients nitrogen and phosphorus, sediment, pesticides and faecal organisms (from animal excreta). These pollutants do not just harm the water environment but also impact on air quality, nature and wildlife.

2.4 The impacts of diffuse water pollution include eutrophication¹, increased flood risk, loss of marine wildlife and silting of fish spawning grounds, as well as pollution of bathing and shellfish waters. It increases costs for water bill payers through treatment costs and impacts on tourism and shellfishing.

2.5 Diffuse water pollution from agriculture accounts for approximately 25% of all reasons for waterbodies not achieving the desired water quality, water companies account for 34% and the urban and transport sectors are responsible for 17%².

2.6 Preventing diffuse water pollution reduces these impacts.

2.7 It is also good for farming business:

- improving productivity and resource efficiency of English farms.
- building the brand of good environmental standards in England.
- keeping water clean downstream for other users.

2.8 English farmers are losing valuable resource through diffuse pollution. 235,000 tonnes of nitrogen³ and 8,391 tonnes of phosphorus⁴ are lost every year

¹ Eutrophication is when there is too much nutrient in rivers and lakes, causing excessive growth of algae and plants. This affects the quality of the water and how we use it, as well as damaging the local ecology.

² Environment Agency 2015 Reasons for Not Achieving Good Status data

that would otherwise help sustain farming. In England and Wales 2.9 million tonnes of soil are lost from fields every year.⁵

Why do we need basic rules?

2.9 In England, agriculture uses almost 70%⁶ of the land area and accounts for over 50% of nitrate³ lost to the water environment, 25% of phosphorus⁴, 75% of sediment⁷ and 80% of pesticides⁸. So whilst it is also important to look at other sources, we need to ensure that all sectors contribute towards the solution.

2.10 Water pollution from agriculture has a real economic cost. It increases water bills for households and businesses and has a negative impact on tourism, at bathing beaches and on the shellfish industry. The practices that avoid such pollution are recognised good farm business practice, improving productivity and efficiency.

2.11 Advice and incentives help persuade farmers to adopt good practice, conserving soil and nutrients in the field. More than half now do so, recognising the benefits to their business. But others continue to neglect basic good practice. By making some basic industry good practice mandatory this will help increase the overall competitiveness and efficiency of our farming industry.

2.12 The consultation sets out 11 basic rules and actions, covering fertiliser, livestock and soil management. We are proposing introducing a minimum of seven of these and seek views on a further four. Our analysis indicates the first seven rules could enable a net present value of savings of £392m for farm businesses that do not currently carry out these actions, an environmental benefit of £309m and a 2.4% reduction in phosphorus and reductions in other pollutants. If the other rules and actions were undertaken, then there would be a net present value of costs for the industry of £84m, the environmental benefit could increase to £484m with 6.6% reduction in phosphorus and reductions in other pollutants.

2.13 The proposed approach will update the current legal framework and will improve our measures to prevent and control pollution of water bodies. At present there is a mix of rules such as the Nitrate Pollution Prevention Regulations 2015, the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010 (SSAFO) and Cross Compliance. Together these contribute to preventing deterioration of our surface waters and groundwater and improving water and sustaining future resources for farming.

³ Lord, E.I., Hughes, G.O., Wilson, L., Gooday, R., Anthony, S.A., Curtis, C. and Simpson, G., 2008. Updating Previous Estimates of the Load and Source Apportionment of Nitrogen to Waters in the UK. Final Report for Defra Project WQ0111, 104pp

⁴ White, P.J. and Hammond, J.P. 2009. The sources of phosphorus in the waters of Great Britain. *Journal of Environmental Quality*

⁵ Defra 2011, SP1606 ; The total costs of soil degradation in England and Wales

<http://scienceresearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16992>

⁶ Defra 2014, Agriculture in the United Kingdom 2014, Table 2.1 Agriculture land use (a)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/430411/auk-2014-28may15a.pdf

⁷ Collins, A.L., Anthony, S.G., Hawley, J. and Turner, T. 2009, Predicting potential changes in agricultural sediment inputs to rivers across England and Wales by 2015, *Marine and Freshwater Research*, 60 (7), 626-637

⁸ Defra. 2008. Understanding the impact of farming on aquatic ecosystems. Project WQ0112

2.14 However they do not cover all pollutants nor do they cover all farmers.

2.15 Our proposed basic rules aim to help all farmers meet industry good practice, reduce costs, improve the environment, address gaps in existing regulations and create a level playing field for all.

2.16 By collectively taking small steps within a catchment to tackle diffuse pollution, all farmers can contribute to maximising the benefits of cleaner local rivers, lakes and beaches.

The Proposed New Rules

2.17 The proposed rules focus particularly on phosphorus as there are currently no rules that cover phosphorus and it is a significant pollutant. However given the integrated nature of diffuse pollution any rules on phosphorus will also help reduce all key pollutants.

2.18 We have developed these proposals with advice from agricultural industry representatives, farmers and other interested parties through workshops and expert groups. Together, we have considered the evidence of the problem, the most appropriate ways to address it and the most effective approach to implementation.

2.19 These basic rules are already carried out by many and are included in industry good practice guidance such as Think Manures, some Farm Assurance Schemes, and the Government's Code of Good Agricultural Practice Protecting our Water Soil and Air.

2.20 People we have worked with considered it best to focus first on measures that saved farmers money and helped to improve the environment. They also indicated that **how** the requirements are implemented is as important as **what** the basic rules are. They preferred an advice-led approach backed up by regulation which supported farmers to change their practices and focused on action on the ground rather than paperwork. These and other comments have helped shape our proposals.

2.21 We created a shortlist of possible regulatory actions grouped into two options based on these principles:

- maximise benefits and minimise any costs for farmers
- maximise benefits for the economy as a whole
- maximise reductions in diffuse pollution and benefits to the wider environment
- focus on advice to introduce any new rules
- clear and practical rules based on industry good practice
- create a fairer system with a clear minimum standard for all

2.22 These basic rules will provide a clear baseline of good practice. We can then build on this, targeting where further action is needed, for example, through advice and incentives.

2.23 Given time to adjust and with advice provided by the Government and partners, we hope to see all farms and water users benefit from these actions.

Questions are asked in the online version of this consultation about the respondent to help analyse the responses: name, email address, name of organisation or role, and if people wish to be kept informed.

Q1. If we introduce new basic rules to reduce diffuse pollution from agriculture do you agree with the principles set out in paragraph 2.21? Yes/No? What are the key reasons for your view?

3 Details of the proposed basic rules

3.1 All the proposed basic rules reflect good practice and are already set out in our Code of Good Agricultural Practice, industry guidance and some targeted regulations such as the Nitrates Pollution Prevention Regulations. We have considered which rules should be included in new regulation and which should be promoted alongside. For the purposes of our Impact Assessment we split the list of potential new basic rules into two options. We welcome your views on the individual rules and what would be the optimum set of rules to deliver the twin objectives of improving water quality and supporting productive agriculture.

3.2 Rules giving specific metrics for positioning manure storage, livestock feeders and spreading volumes are based on existing guidance and expert judgement on the associated risk to water quality.

3.3 Compliance with the rules would be checked through existing farm inspections, where possible, and in line with Government priorities we will look to use remote/satellite sensing. We will also continue to identify opportunities to work in partnership with farm assurance schemes on earned recognition to minimise burdens on farmers. These approaches should minimise the cost of implementing these rules of good practice.

Table 1. List of proposed rules, environmental impact and verification

Option 1		
Proposed rule	Rationale and environmental impact	How might it be verified?
Inorganic and organic fertiliser management		
1. Locate field manure storage at least 10 metres from a watercourse.*	Reduce the risk of polluting rivers through surface runoff and leaching.	Remote sensing
2. Use a fertiliser recommendation system (e.g. RB209, PLANET etc.), taking into account soil reserves and organic manure supply.	Reduce diffuse pollution to surface water and groundwater by planning crop nutrient requirements and spreading no more inorganic and organic fertilisers than a crop (including grass) needs.	Part of existing inspections

3. Spread fertilisers and manure accurately, e.g. by using calibrated and maintained machinery.*	Reduce diffuse pollution by ensuring that the spreading of fertilisers accurately meets crop nutrient requirements, minimising the amount of residual fertiliser or manure that might be lost to water courses.	Remote sensing
Livestock management		
4. Use a feed planning system to match nutrient content of diets to livestock feeding requirements.	Reduce pollution from feeding livestock by matching the diet to livestock needs to reduce nitrogen and phosphorus levels in their waste.	Part of existing inspections
5. Livestock feeders must not be positioned within 10 metres of any surface water or a wetland.	Reduce pollution by stopping animals poaching and excreting close to rivers or wetlands.	Remote sensing
6. Avoid severe poaching ⁹ where likely to pollute a watercourse (compliance achieved if already meeting GAECs 4 & 5). ¹⁰	Reduce pollution through surface runoff by not allowing livestock to compact soil where pollutants can flow quickly to surface water.	Remote sensing
Soil management		
7. Take action to prevent soil erosion and run-off from tramlines, rows, irrigation and high risk sloping lands or those lands highly connected to surface water. (Compliance achieved if already meeting GAECs 4 & 5).	Reducing pollution through soil erosion and surface runoff by managing places from where pollutants can quickly reach a water course.	Remote sensing

⁹ Poaching is damage to land from livestock moving or trampling on wet soils. This leads to compaction and reduced infiltration as well as removing the vegetative cover, leaving the soil open to the elements and prone to being washed away via surface water runoff.

¹⁰ Good Agricultural and Environment Conditions 4 and 5 are requirements for anyone claiming the Basic Payment Scheme and cover minimum soil cover and minimum land management to limit erosion. More detail can be found at: <https://www.gov.uk/government/publications/cross-compliance-guidance-for-2015>

Option 2 (Further measures in addition to Option 1)

Inorganic and organic fertiliser management

<p>8. Do not spread more than 30m³/ha of slurry or digestate or more than 8t/ha of poultry manure in a single application between 15th October and the end of February. No repeat spreading for 21 days.*</p>	<p>Reduce diffuse pollution through surface runoff and leaching by not spreading large amounts of fertilizer during the time of year when the risk of water pollution is greatest and plant requirement is least.</p> <p>Reduce waste as less uptake by crop of nutrients over winter months.</p> <p>Note that slurry storage capacity is also relevant.</p>	<p>Remote sensing</p>
<p>9. Do not spread manufactured fertiliser or manures at high-risk times or in high-risk areas.*</p>	<p>Reduce pollution by not applying fertilizer where pollutants can be easily and rapidly transferred to surface water or groundwater. Avoid weather and soil conditions (e.g. high rainfall or frozen ground) that favours quick transfer to surface runoff or drains, or when crops cannot take up nutrients.</p> <p>Note that slurry storage capacity is also relevant.</p>	<p>Remote sensing</p>
<p>Proposed good practice:</p> <p>10. Incorporate manures into soil as soon as possible and within 24 hours after application at the latest.*</p>	<p>Reduce pollution through surface runoff and drains by increasing the surface roughness of manure. Ammonia emissions are also reduced as there is less contact between the manure and air.</p>	<p>Not verified, but promoted alongside the other rules.</p>

Proposed good practice: 11. Exclude livestock from watercourses (excluding uplands and Common Land).	Reduce pollution by stopping excreta dropping into watercourses or avoid river bank erosion leading to more sediment loss.	Not verified, but promoted alongside the other rules.
---	--	---

*Farmers meeting Nitrate Vulnerable Zone rules would be compliant.

Questions on the list of proposed basic rules

Q2. Please tick those basic rules above that you consider most appropriate to add to the existing regulations in terms of safeguarding water quality and supporting competitive farming?

Q3. Do you have any comments on individual rules?

Q4. Do you have any comments on the proposed approach to verification?

Q5. Are there any additional rules or good practice which you feel should be added? Yes/No? If Yes please give details.

Implementation Approach for Proposed Basic Rules

3.4 We propose that these new basic rules would apply across England, rollout would be focused on high priority areas for action such as those that are most sensitive to pollution e.g. drinking water areas, natural habitats, lakes rivers and beaches.

3.5 Before the rules come into force we would provide clear communications through all possible channels such as Government, industry and NGOs. By working in partnership we expect to see the optimum level of uptake for the new rules.

3.6 This would give farmers time to understand why they are being asked to act linked to the priorities and issues in their catchment and the reasons why action may be beneficial for their business.

3.7 The Environment Agency's risk based approach¹¹ to regulation would be the basis for enforcement of the new rules. Where farmers did not comply with the rules, we propose to focus enforcement efforts on priority catchments. This would

¹¹ <https://www.gov.uk/government/publications/environment-agency-approach-to-regulation>

normally be an **advice-led** approach at first. Farms remaining non-compliant could then expect to receive formal warnings and potentially a fine. Prosecution would generally only follow in the case of the more serious offences where there had been a failure to respond to those warnings. This staged approach is designed to avoid placing a disproportionate burden on farm businesses.

Q6. Do you agree or disagree with the above approach to compliance and enforcement? Agree/Disagree? What are the key reasons for your view?

Streamlining Regulations for Farmers

3.8 We propose, over time to streamline regulations for controlling agricultural pollution into a single set of regulations. This will build on the recent consolidation of six nitrates regulations into one. This will bring together the majority of actions that farmers must take to reduce water pollution (i.e. the existing regulations together with the proposed new regulatory rules).

3.9 The proposed structure would be as follows:

Primary legislation:	Water Resources Act 1991
Secondary legislation:	Separate Statutory instrument split into:
1. Regulations applying to all:	1a. New basic measures (subject of this consultation)
	1b. SSAFO (amended and updated as appropriate)
2. Targeted regulations in defined areas	2a. Nitrate Pollution Prevention Regulations 2015 (to be amended)
	2b. Possibly Pesticides regulations

Q7. Do you agree or disagree with this approach to streamlining regulation? Agree/Disagree? Please give reasons for your view.

3.10 We have decided not to link these rules to cross-compliance to avoid restricting flexibility and to keep them simple. This concurs with feedback from interested parties. Instead we propose to focus on creating a single set of coherent regulations.

Next Steps

3.11 This consultation will help us to develop the best way forward and a decision on these proposals will be taken by the Government.

3.12 Following this, and in line with the above mentioned streamlining we will also present a consultation on the Nitrate Pollution Prevention Regulations 2015 as part of the 4-yearly review cycle for these rules.

3.13 In parallel to this we are working with industry to consider other farm pollution issues such as pesticides in water sources and to consider whether updates to the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (SSAFO) (England) Regulations 2010 (SSAFO) are needed.

Q8. Do you have any further evidence it would be helpful for Government to consider as this policy is developed further?

4 Costs and benefits

Overall Impact

4.1 **Option 1 – seven basic rules which will save most farmers money by using resources more efficiently** through better nutrient management, feed planning and soil management.

4.2 Our analysis showed a net present value of **savings** of £392m for farm businesses that do not currently carry out these actions and environmental benefit of £309m and a 2.4% reduction in phosphorus and reductions in other pollutants.

4.3 **Option 2 – this builds on Option 1 with a further two rules and two best practice actions placing costs on some farmers, but with significantly greater environmental benefits.**

4.4 Our analysis showed a net present value of **costs** to farm businesses of £84m and environmental benefit of £484m and a 6.6% reduction in phosphorus and greater reductions in other pollutants.

4.5 It is difficult to forecast accurately how these actions would affect the sector as a whole. Inevitably some farmers will benefit more than others. Some will incur costs. The Water Quality and Agriculture: Basic Measures Impact Assessment included in this consultation package sets out our analysis in detail. (**Note:** In the Impact Assessment these options are numbered 2 and 3 as option 1 was do nothing).

4.6 The table below shows the main results of the value for money assessment of these proposals. More details including the methodology are available in the Impact Assessment. Both options have positive value for money¹².

Table 2. Main Results of Analysis (rounded to the nearest £m)

Estimated benefits (negative values are costs)	Option 1	Option 2
Present Value of Environmental Benefits	£309m	£484m
Present Value of Net Operational Cost Savings for Farm Businesses	£457m	£122m
Present Value of Capital Costs for Farm Businesses	-£25m	-£154m

¹² Net present value calculated as the present value of a discounted stream of future net benefits over 10 years (benefits minus costs)

Present Value of Administration and Familiarisation Costs	-£40m	-£52m
Present Value of Cost to Government of Enforcement	-£2m	-£2m
Net Present Value	£699m	£397m

Note: It was not possible to quantify biodiversity or soil organic carbon benefits so NPV¹³ is likely to be an underestimate.

FARMSCOPER modelling tool

4.7 The proposed rules have been analysed using a farm nutrient modelling tool called FARMSCOPER (FARM SCAle Optimisation of Pollutant Emissions Reduction) and by consultation with industry experts. The model has been developed for Defra to estimate on-farm losses of pollutants from agriculture to surface water and the atmosphere, and the effects of various mitigation methods in reducing such losses. More detail on this model can be found in Annex C of the Impact Assessment.

Business Impact

4.8 The overall impact on business with **Option 1** is positive with average annual savings of £500 per farm business. This varies between sectors with some sectors experiencing greater benefits than others. Some parts of the dairy sector (and to a lesser extent mixed farms) are likely to have upfront capital costs associated with better feed planning. So, whilst any capital outlay will be paid back over a short time period (approximately two years) through cost savings, this may impact upon some farmers. Intensive pigs and poultry farmers would be less affected as they are already required to undertake most of these actions.

4.9 **Option 2** could involve higher potential costs for some farmers. However, those farmers in Nitrate Vulnerable Zones (currently 58% of agricultural land) will already be undertaking some of these actions, so should be less affected.

4.10 The rule preventing spreading at high risk times or in high risk areas would need to be supported by suitable slurry management arrangements on farm. For the purposes of the impact assessment we have assumed that all farms producing slurry would need to be able to store 5 months' slurry production. Farmers with less storage capacity than this (outside nitrate vulnerable zones) may therefore need to increase their storage facilities.

¹³ Net present value calculated as the present value of a discounted stream of future net benefits over 10 years (benefits minus costs)

4.11 Note that these estimates are based on average levels of baseline implementation of the measures in each option across different sectors; therefore impacts on some farms will be much more positive or negative than the average figures indicated here. More information on the assumptions which generated these results is shown in the Impact Assessment

Environmental Benefits

4.12 The environmental benefits, as calculated through our FARMSCOPER modelling tool indicate significantly greater benefits through Option 1 than Option 2

4.13 As highlighted below, although the focus of the rules is reductions in phosphorus there are also co-benefits for all other pollutants.

Table 3. Estimated percentage reduction in annual losses of pollutant from agriculture for each option

Option	Phosphorus	Nitrate	Sediment	Ammonia	Methane	Nitrous Oxide	Faecal Organisms
1	2.4	0.8	0.3	0.7	0.5	0.8	0.9
2	6.6	1.6	0.3	1.2	0.5	1.5	12.6

Note: Likely to be an underestimate as some measures could not be fully modelled in FARMSCOPER.

4.14 The full impact assessment carried out for this work can be found at <https://consult.defra.gov.uk/water/rules-for-diffuse-water-pollution-from-agriculture>

Annex A. List of questions

Questions are asked in the online version of this consultation about the respondent to help analyse the responses: name, email address, name of organisation or role, and if people wish to be kept informed.

Q1. If we introduce new basic rules to reduce diffuse pollution from agriculture do you agree with the principles set out in paragraph 2.21? Yes/No? What are the key reasons for your view?

Q2. Please tick those basic rules above that you consider most appropriate to add to the existing regulations in terms of safeguarding water quality and supporting competitive farming?

Q3. Do you have any comments on individual rules?

Q4. Do you have any comments on the proposed approach to verification?

Q5. Are there any additional rules or good practice which you feel should be added? Yes/No? If Yes please give details.

Q6. Do you agree or disagree with the approach to compliance and enforcement in paragraph 3.7? Agree/Disagree? What are the key reasons for your view?

Q7. Do you agree or disagree with this approach to streamlining regulation? [paragraph 3.9] Agree/Disagree? Please give reasons for your view.

Q8. Do you have any further evidence it would be helpful for Government to consider as this policy is developed further?