Farming Rules for Water

The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018

Common Questions and Answers including those relating to time limited RPS 252 valid to 1 March 2022

Date: July 2021

Version: 1.0

Contents

Regulatory Position Statement RPS 252: Regulation 4 Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018

RPS 252 is published on GOV.UK: https://www.gov.uk/government/publications/spreading-organic-manure-on-agricultural-land-rps-252

To make best use of organic manure nitrogen and to minimise nitrate leaching losses, materials should be applied in the late winter to summer period. The Farming Rules for Water (FRfW) reinforce this approach to good organic manure management by requiring applications to not exceed the soil and crop need.

It has become clear to the Environment Agency that significant quantities of organic manure are still applied to arable stubbles in the autumn prior to drilling winter cereals. Doing this puts a land manager at risk of breaching Regulation 4, which is also called Rule 1 of the FRfW.

The Environment Agency wishes to give land managers and those who supply them with unavoidably produced organic manures more time to modernise their manure management practices. This is especially relevant to manure and slurry produced by livestock farmers and biosolids produced by the water industry.

The RPS will enable current practice to continue in most situations and alleviate the immediate concerns of those managing large quantities of organic material.

The Environment Agency is working closely with the Agricultural & Horticulture Development Board (AHDB), the National Farmers Union (NFU), Water UK and others to provide more communication and guidance on better organic manure approaches to enable farmers to comply with Rule 1 of the FRfW.

Defra is creating a slurry storage grant scheme that will become available in 2022 and the Environment Agency will deliver a Sludge Strategy by 2023, both of which will help farmers and the water sector to better manager organic manures.

RPS 252: Questions

What is Rule 1 (Regulation 4)?

Rule 1 requires that the application of organic manure and manufactured fertiliser to agricultural land must be **planned** so that the application does not exceed the needs of the soil and crop on land **or** give rise to a significant risk of agricultural diffuse pollution. They must also consider the weather conditions and forecasts for the land at the time of application. It applies to all organic manures and all land managers.

What does this RPS allow me to do?

You can have a **planned** application of organic manure to agricultural land that exceeds the crop and soil needs on that land provided it does not cause pollution and meets certain conditions as set out below.

Will all Farming Rules for Water be relaxed?

No. The RPS does not apply to any other activity, including other parts of the Farming Rules for Water. You may still need other permits or permissions for activities you carry out.

Will I still have to comply with other legislation?

Yes. The RPS does not change any other requirements such as those for storage (Silage, Slurry and Agricultural Fuel Oil Regulations (SSAFO)) or NVZs or landspreading (Sludge (Use in Agriculture) Regulations and Environmental Permitting Regulations). If you cause pollution whilst operating under this RPS we will take appropriate enforcement action.

When can I do this?

This RPS applies only for spreading up to 1 March 2022 and only when you comply with the conditions specified below and that spreading for greater than crop and soil need cannot be avoided. To comply with the RPS you must tell us you are using it. By doing so we will be able to show that the RPS is necessary and that if there is a need to use a similar position in future years' we will have the evidence that there is a demand for it

How to notify us you are using this RPS

You must notify the Environment Agency that you are using the RPS. You must give the following details: name and company name using the RPS,email address and phone number,address where the material relating to the RPS will be used, type of material that will be spread. You must email enquiries@environment-agency.gov.uk using **Spreading organic manures on agricultural land: RPS 252** in the subject line. Please see the privacy notice on how we use your personal details

Contingency planning

You must have a contingency plan to avoid causing pollution of the environment that shows the use of the RPS is your only option. The plan should include field inspections to assess whether organic manures are likely to get into surface water or groundwater. In order to demonstrate that the RPS is your only option you must show that options 1- 4 in the following hierarchy are not feasible, before you use option 5 and spread.

1. Store the organic manure at the place of production.
2. Store the organic manure at the place of use.
3. Dispose of the organic manure at an off-site anaerobic digestion plant or other effluent treatment plant, including at a sewage treatment works.
4. Store the organic manure off-site.
5. Spread the organic manure on low leaching and run-off risk land.

Where possible we suggest you work with neighbouring farmers to create contingency plans

Can I do this anywhere?

You can only spread organic materials on low leaching and run-off risk land. For the purposes of the RPS that is where:

- The soil is **not a sandy or shallow**, within the meaning of the nitrate vulnerable zones
- The land is **not left bare over winter**
- It is land with an average slope of **less than 8 degrees**, and drainage is not impeded (i.e. does not have compacted soil or a soil surface which is capped - you can only spread where **the soil is permeable and has a good structure**)
- the soil **is not** at field capacity above a land drainage system (other than sealed impermeable pipe) or shallow groundwater
- the land does not have cracked soil above a land drainage system or shallow groundwater
- the land has not been pipe-drained, mole-drained, or sub-soiled in the last 12 months
- the land is not within a designated groundwater source protection zone 1
- you spread at least 10 metres from surface water or a conduit leading to surface water
- you spread at least 50 metres from springs, wells, and boreholes

You can only spread when weather and ground conditions allow in accordance with the Farming Rules for Water and good agricultural practice.

What is shallow groundwater?

There is no legal definition for shallow groundwater. For this purpose it means: a water table within at least 60 cm of the surface.

How much organic manure can I spread?

You can spread at an application rate that does not exceed more than 5kg/ha of nitrate-nitrogen to be leached. The value used as the nitrate-N leaching limit in the RPS is an 'old' cattle FYM 5kg/ha default value. Nitrogen use, efficiency, and losses, including nitrate-nitrogen can be calculated using MANNER-NPK. This can be downloaded with instructions from www.planet4farmers.co.uk/Manner.aspx. Agronomists should also be able to help with this.

You must be able to show that your planned applications to land are not more than the crop requirements for the duration of the current planned crop cycle.

Can I spread organic manures from another farmer or from another source?

Yes provided that you comply with the all the conditions set out in the RPS.

Who is responsible for complying with the regulatory position statement?

The Farming Rules for Water specify that the land manager is responsible for compliance. In most cases the landowner or tenant will be responsible for what and how material is applied. If you use contractors to spread material on the land you must ensure they are doing so in compliance with the regulations, your contingency plan and the RPS.

Will I face civil or criminal sanctions if I comply with the RPS?

If you have complied with the conditions and requirements set out in the regulatory position statement you should not face sanctions.

If you cause pollution the Environment Agency will consider all available enforcement options.

To avoid enforcement action, you should

- ensure spreading is the only option available
- only spread the amount of organic manure you need to reduce the risk of pollution
- only spread on the lowest leaching and runoff risk land available
- carry out regular checks before, during and after spreading to ensure there is no pollution taking place

What do I do if I cannot comply with the Regulatory Position Statement but I still need to spread organic manures in the autumn and winter?

If you cannot comply you must contact the Environment Agency before you spread any organic manure to land or if you are unsure of your obligations. Local officers will work with you to come to a locally acceptable position.

General Farming Rules for Water (FRfW) Questions

Nutrient focused questions

1. **Please explain was is meant by "within 50 metres of a spring", for instance does it simply mean a spring used for drinking water?**

Under FRfW "agricultural diffuse pollution" means the transport of agricultural pollutants into inland freshwaters or coastal waters, or into a spring, well or borehole. A spring is a place where groundwater flows naturally from a rock or the soil onto the land surface or into a body of water, temporarily (e.g. after rainfall) or as a continuous flow. Farmers must ensure that organic manure is not applied to agricultural land with 50 metres of any spring regardless of its source, flow or use.

2. **Can you apply organic manure within 10 metres of a watercourse, using dribble bar spreading equipment?**

FRfW allow organic manure to be applied within 6 metres of inland freshwaters or coastal waters provided the application is made using precision spreading equipment. Precision spreading equipment, includes:

- A trailing hose spreader or a trailing shoe spreader,
- A shallow injector which injects organic manure no deeper than 10 centimetres below the surface, and
- A dribble bar applicator.

When using any form of spreading equipment, the farmer must ensure that any factors which could give rise to a significant risk of agricultural pollution from the application are taken into account, and reasonable precautions taken to prevent diffuse pollution resulting from applications. So whilst organic manure can be applied within 6 metres, other risk factors and precautions still need to be taken into account. For instance, the slope of the land, groundcover, the soil type and condition of the land, weather conditions, etc.

3. **If soils are at Phosphorus Indices of 3 and above can manures be spread as there is no crop need?**

FRfW require that each application of organic manure or manufactured fertiliser to agricultural land is planned so that it does not exceed the needs of the soil and crop on the land or give rise to a significant risk of agricultural diffuse pollution.

On soils deficient in phosphate it is advisable to use water soluble phosphate in addition to any insoluble or organic or inorganic phosphate. Where soil reserves need to be built-up to reach the target level, and the rules would allow you to apply in the autumn/winter, less soluble forms of phosphate should be applied. When a soil is at phosphorus index 3, in most crop situations there is no need for phosphate. When used on soils not deficient in phosphate, the amount of phosphate applied should not cause the soil phosphorus level to rise (i.e. result in a soil phosphorus surplus, which would continually build-up over time). This can be done over a crop rotation, for example

applying sufficient phosphate to cover the immediate crop and a following crop or crops too. The simple way to manage phosphate applications on soils already at the target phosphorus index is to supply crop need (i.e. to meet planned crop off-take) as total phosphate rather than as water soluble phosphate.

Where there is a significant risk of causing pollution and a soil index is above the target index, then it is important to run the soil phosphorus level down towards the target index. The greatest risk of phosphorus pollution is associated with runoff (soil and organic matter particles). Water soluble phosphate is less easily leached, provided the soil has sufficient buffering capacity. The greatest risk of leaching is on light soils, which are less able to remove phosphate from soil solution through a process known as soil sorption. However, leaching can occur on medium to heavy soils where the soil phosphorus index is too high.

The Potash Development Association's Phosphate and Potash Nutrient Calculator 2020 can be used to calculate nutrient offtake and nutrient deficiency and to adjust applications to rundown soil phosphorus index towards the target yield: https://www.pda.org.uk/calculator/pkcalculator.html.

4. **Above 4℃ for grassland do you need to test the soil for N, or can it still be determined by SNS level?**

FRfW state that for the purposes of soil testing, nitrogen can be estimated using SNS. In normal circumstances this is okay. However, when spreading on grass at a time of year when there is not normally a need for nitrogen, for instance after September, just because the soil temperature can be greater than 4℃ that is not an agronomic justification of crop need in its own right. In such circumstances the Environment Agency would require sufficient evidence to show there is a need for nitrogen after September, not an opinion or belief. For example, you would need to show what nitrogen is needed to make good any shortfall to achieve an expected and useable yield. This may require soil testing to demonstrate a nitrogen shortfall against nitrogen mineralised from the existing soil organic matter.

Even where a nitrogen need can be shown, it must not give rise to a significant risk of diffuse pollution. To assess risk we strongly recommended farmers and advisers use the MANNER-NPK software, which as well as providing a quick estimate of crop available nitrogen also estimates the fate of organic manure nitrogen following land application. For instance, nitrate-nitrogen loss. The software can be download free of charge from: http://www.planet4farmers.co.uk/Manner.aspx.

5. **Are there any restrictions on dirty water irrigators?**

The use of dirty water slurry (DW), or lightly fouled water slurry (LFW) like any other organic manure must be planned to ensure applications do not exceed the needs of the soil and crop on the land, or give rise to a significant risk of diffuse pollution. Risk factors and reasonable precautions that need to be taken are similar to the use of other spreading methods; and while low rate irrigators are commonly used to apply such effluents to land rather than heavy slurry tankers, helping to avoid compaction, inappropriate use (e.g. on compacted or wet soil) can still result in effluent running off the land or being washed or drained from the soil and give rise to diffuse pollution.

As DW and LFW are slurry they must be stored in accordance with *The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010* and the in nitrate vulnerable zones (NVZs) *The Nitrate Pollution Prevention Regulations 2015*. There is no exemption in either Regulation to allow a lower storage capacity requirement than any other slurry.

6. **Can you apply farmyard manure (FYM) to land in the autumn, as applying in the spring is not very practical? And, can I spread well-rotted FYM on arable stubbles before winter wheat or grain rye?**

FRfW apply to all organic manures applied to land. FYM comes in variable forms, but essentially 'fresh' or 'old' cattle or pig FYM, or poultry manure. Fresh manures have a higher nitrate-nitrogen leaching risk than old manures when applied to land in the autumn. Stacking FYM in fields can also lead to pollution.

In the first instance, there has to be a soil and crop need for FYM (e.g. ahead of oil seed rape). If there is, depending on the soil phosphorus index, phosphate may be the limiting nutrient rather than nitrogen. Secondly the application must not give rise to a significant risk of diffuse pollution.

To avoid the loss of nitrate-nitrogen in the autumn, where soil conditions allow applications should be made in the spring. If there is no nitrogen need in the autumn, but the soil conditions are likely to be too wet in the spring to avoid soil damage and a significant runoff risk, then FYM can be applied in the autumn if it's appropriately treated to avoid the risk of causing nitrate-nitrogen pollution. Whilst 'old' FYM has a lower risk than 'fresh' FYM, the most practical option to avoid pollution is likely to be composting.

Composting is a controlled aerobic process, which cannot be achieved simply by stacking over time without regularly turning/mixing.

Composting has multiple benefits, including:

- Reduced volume, weight and spreading costs
- More stable form of nitrogen, other nutrients and carbon/good soil conditioner, with improved nutrient cycling
- Reduced risk of nutrient loss and pollution during storage
- Reduced risk of nitrate-nitrogen loss when applied to land
- Reduced odour problems and pathogens
- Reduced weed burden
- Improved beneficial microbial activity
- Can be applied directly to cropland, subject to conditions

7. **How long does FYM need to be stored to become compost? Does compost as a soil conditioner then have the same constraints?**

Properly composted material has a very small amount of readily available nitrogen and will unlikely pose a nitrate-nitrogen risk when applied in the autumn.

Stacking and storage does not create compost, it is an aerobic treatment process. The speed and effectiveness of composting depends on many variables, including the turning/mixing regime, the nature of the FYM, other ingredients added, and achieving the right Carbon:Nitrogen ratio to enable effective decomposition whilst limiting ammonia loss. Aerobic composting of FYM and other relevant waste can be carried out under a T23 exemption.

8. **If I applied slurry in January to a silage crop and could show that the crops dry matter production was greater in March than on non slurried crop, would crop and soil need be demonstrated?**

It is recommended that no applications of slurry is made to land until after 31st January to avoid nitrate-nitrogen pollution. This is a specific regulatory requirement in NVZ for organic manures with a high readily available nitrogen content on non-sandy and shallow soil. Notwithstanding that, nitrate-nitrogen is only one risk factors, other factors need to be considered and reasonable precautions taken to ensure applications do not give rise to the wider significant risk of diffuse pollution.

Provided the activity does not give rise to diffuse pollution, and what is applied does not exceed the needs of the soil and crop on the land, it is allowed.

9. **RB209 allows for additional total N to be applied to a crop according to yield potential. This allows movement to the recommendations according to crop need. With milder weather in the SW is the autumn crop N need and utilisation different to other areas e.g. NW? We seem to have a one size fits all prescription.**

FRfW allow for a flexible approach were it can be ensured that each application of organic manure is planned so that it does not exceed the needs of the soil and crop, or give rise to a significant risk of diffuse pollution. The later condition becomes more significant as you move beyond October, when soils return to field capacity and there is a risk of loss through runoff and/or pollutants being washed or drained from soil is high (e.g. nitrate-N, ammonium-N and phosphorus). Both conditions must be met, regardless of any extended growing season. See also answer to Question on P indices above.

10. **Is it alright to apply manures with a view to nutrients being available for the following spring? Is it alright to apply digestate before a crop is established in the spring but could still cause legacy NO_3 pollution by leaching?**

Digestate can be applied to a crop in the autumn provided there is a soil and crop need, that need is not exceeded and the application does not gives rise to a significant risk of diffuse pollution.

Phosphate: Phosphate applied is removed from soil solution by a process known as phosphorus sorption, and unless the soil phosphorus level is too high to buffer the nutrient it will be retained for future crop use. However the risk of loss can be high on light soils, which have a low phosphorus buffering capacity. Provided the soil phosphorus level is managed to the target soil phosphorus index, then that is good agricultural practice which the FRfW seek to emulate.

Nitrogen: Digestate has a high readily available content of up to 80%. Total nitrogen can range from 2.6-5 kg/m^3, so is easily over applied, will exceed any soil and crop need in the autumn (e.g. oil seed rape) and give rise to a significant risk of diffuse pollution. The risk of nitrate-nitrogen leaching from digestate applied in the autumn is very high. For instance, on a clay loam soil in an average rainfall area around 60kg/ha of nitrate-nitrogen can be lost (based on a 50m^3/ha application rate applied to a winter cereal crop with no seedbed nitrogen need, using a bandspreader). It will be more than 100kg/ha on a light soil or silt loam soil.

To assess risk we strongly recommend farmers and advisers use the MANNER-NPK software, which as well as providing a quick estimate of crop available nitrogen also estimates the fate of organic manure nitrogen following land application. For instance, nitrate-nitrogen loss. The software can be download free of charge from: http://www.planet4farmers.co.uk/Manner.aspx.

11. **My farm activity is based on livestock and focuses on spreading manures in the autumn and incorporating them to break down stubbles and grow winter cereals. Can this continue?**

There is no autumn soil or crop need for nitrogen to break down winter stubbles and chopped straw, or for winter cereals. What nitrogen a winter cereal crop needs to establish is adequately released through the mineralisation of organic matter. Nitrogen not taken up by a crop is at risk of leaching. For instance, on a clay loam soil in an average rainfall area around 22kg/ha of nitrate-nitrogen can be lost from cattle slurry (based on a 50m^3/ha application rate applied to a winter cereal crop with no seedbed nitrogen need, using a bandspreader). Around 38kg/ha will be lost on a light soil or silt loam soil.

If stubbles and chopped straw fail to break down this is more likely to be associated with a soil health issue (such as poor structure) rather than a nitrogen deficiency.

12. **Does moving from autumn spreading to spring spreading of organic manures result in greater air pollution by ammonia in the spring?**

Ammonia loss is largely the same between the autumn and spring, assuming organic manures are applied to land in the same way. However, an organic manure incorporated in the autumn but unable to be incorporated in the spring, e.g. due to wet soil conditions, would, in the spring, have a higher ammonia emission loss. In contrast, an organic manure incorporated in the autumn reduces ammonia loss but increases the amount of nitrate-nitrogen leached.

The FRfW were introduced to reduce and prevent diffuse pollution of water. However, air pollution should be reduced and prevented too, whenever possible. This could include reducing ammonia emissions in other ways, if not possible through the method of application or prior treatment, by reducing ammonia emissions elsewhere on farm.

Soil management focused questions

13. **The guidance on building tracks says you have to dig them in. Surely it is better on top of the ground?**

How tracks are built is not specified in the FRfW but a land manger must take reasonable precautions to prevent diffuse agricultural pollution.

14. **Does poaching under FRfW exclude outwintering cattle on fields that are not sloping and/or not next to a watercourse, or if the soil is poached but is not moving off the field?**

The FRfW do not prevent cattle outwintering where runoff or leaching would not give rise to a significant risk of diffuse pollution of inland freshwaters, coastal waters, springs, wells or boreholes. However, soil damage which degrades soil health and causes topsoil loss should be avoided in all circumstances regardless of the risk of causing pollution.

15. **If a summer catch crop is used before a winter crop, a little N makes a huge difference to the winter crop so there is a crop need for it?**

A catch crop can be grown between other crops and may be harvested before the main crop matures. If there is an additional soil and crop need to the main crop to cater for a catch crop an

appropriate amount of fertiliser which doesn't exceed need can be applied. Where used as a cover crop, they are grown to scavenge and lift nutrients which would otherwise be lost over winter. There is no nitrogen requirement for most cover crops and would defeat their objective.

16. **Applying solid FYM in the spring when growing cereal crops is not very practical.**

Organic manure can be applied in the autumn provided there is a soil and crop need or would not give rise to a significant risk of diffuse pollution. Provided the amount of readily available nitrogen in organic manure is low enough not to cause nitrate-nitrogen pollution, then it can be applied.

Enforcement focused questions

17. **What will the Environment Agency do when a farmer is doing everything right but gets caught out by unpredictable weather such as a thunderstorm in June that leads to soil erosion and makes reseeding difficult?**

This may depend on how unpredictable the weather was as the rules require a land manager to take account of weather conditions before spreading. However, we recognise that there are occasionally circumstances that are beyond a farmer's control and we will work with them. We will also look at the history of compliance and practice on that farm and take action accordingly.

18. **What is the enforcement regime?**

Under FRfW both civil and criminal sanctions are available to the Environment Agency to ensure compliance with requirements. Our approach will always be to give advice and guidance first, directing farmers to sources of guidance and access to grants, such as via the Catchment Sensitive Farming partnership. However we reserve the right to escalate and impose civil or criminal sanctions if advice, guidance and warning letters do not bring about the necessary changes in behaviours.

19. **From what I have heard, farmers are 'guilty' until the farmer has proved otherwise, is this correct?**

Environment Agency officers take a risk-based approach to site visits or will respond to incidents. There is no presumption of guilt and it is the responsibility of the land manager to operate within the requirements of FRfW. Where we find issues we will work with farmers using advice and guidance, reserving the right to impose civil or criminal sanctions if necessary. Only courts can find a person guilty of an offence unless there has been an admission of guilt.

20. **How do we know the Environment Agency's stance on Regulation 4 (Rule1) is correct?**

The Environment Agency's interpretation of soil and crop need is consistent with the recommendations in Agriculture & Horticultural Development Board (AHDB) Fertiliser Manual (RB209). The Environment Agency has worked closely with AHDB and others to confirm that the interpretation of the recommendations in RB209 are correct.

To date no evidence has been provided that would change our interpretation, including any other fertiliser recommendations.

The overall purpose of the FRfW is to reduce and prevent agricultural diffuse pollution. Even when applications of organic manure and manufactured fertiliser do not exceed the needs of the soil and crop, applications must still be planned so that they do not give rise to a significant risk of diffuse pollution.

General questions

21. **In the FRfW, what factors determine 'crop need' when making an inorganic or organic fertiliser recommendation?**

Soil as well as crop needs have to be considered. For example, natural mineralisation of nitrogen from soil organic matter and the phosphorus soil index. Soil and crop need also varies between the seasons. For instance there is no nitrogen requirement in the autumn for winter cereals. On grassland the amount of nitrogen needed between cuts decreases from spring to summer as the grass growth rate reduces (e.g. 40% of the total nitrogen need applied for the first cut and 10% in August for a last cut). The Environment Agency, when making its assessment of compliance with soil and crop need, uses the peer reviewed AHDB RB209 as its first point of reference. We do not consider a general opinion or a person's belief to be a fertiliser recommendation; soil and crop need must be evidence based.

22. **Assuming an agronomic benefit as diagnosed by a FACTS adviser e.g. combined with chopped straw or direct drilling, can any organic manure be applied before autumn cereal crops within the FRfW? Assuming any high readily available N content material is applied before NVZ closed periods.**

FRfW apply to all organic manure regardless of the readily available N content.

No autumn soil and crop nitrogen requirements have been established for winter cereals, regardless of cultivation practices.

23. **In land that is to be cropped several times in a season is it ok to apply for the first crop based on offtake of both crops? Bearing in mind that fields are harvested and re drilled in small sections over several weeks. They are not necessarily re cropped in the same order and bespoke suspensions mixes are used over groups of fields.**

Provided there is a soil and crop need, or applications would not give rise to a significant risk of diffuse pollution then yes. Phosphate can be applied in front of a crop rotation, provided it meets those requirements.

24. **Under FRfW if a farm is not in a NVZ should all organic nutrient recommendations be made as if they were, i.e. to adhere to closed periods and organic nitrogen limits?**

No. To comply with FRFW soil and crop need requirements, or to ensure applications do not give rise to a significant risk of diffuse pollution, you need to take other factors into account which may be in excess of NVZ requirements. For instance, FRFW apply to all organic manure regardless of whether they have a low or high readily available nitrogen content.

25. **Outside NVZ areas, how do the FRfW quantify the maximum amounts of manufactured N?**

FRfW do not quantify the maximum amounts of organic manure or manufactured fertiliser nitrogen, the rules simply require each application is planned so that it does not exceed the needs of the soil and crop, or give rise to a significant risk of diffuse pollution.

26. **Do the FRfW prevent applications of organic manures to soils with satisfactory P & K indices & if so what are the lowest indices where organic manures can still be applied.**

FRfW require applications to not exceed the needs of the soil and crop or give rise to a significant risk of diffuse pollution. If there is need for P and K they can be applied to build-up a soil deficiency, or to maintain the target level. If the soil fertility index is above the target level, they should be managed back towards the target level. Applications which result in the build-up of soil fertility above the target level need to be avoided. The level of action needed to bring down soil phosphorus on high index, high risk, soils needs to greater than on soils just above the target level on low risk soils.

27. **We are in a situation on some livestock farms where they have been applying FYM or digestate for some years and the soil indices for both P and K are high. In theory, we should not be applying any P to these crops for many years but what else do we do with the muck/digestate? Is the EA wanting it exported to other farms? There will be resistance to this due to the available N in these products, and the subsequent reduction in applied N to meet crop need. Organic manures are also key for soil health and building organic matter content - and ultimately the long-term productivity and resilience of our soils.**

Farms need to work within a whole farm nutrient budget, including an audit to understand the amount of nitrogen and phosphorus entering and leaving a farm to avoid excess and improve overall nutrient efficiency. Surplus nutrients can increase the risk of diffuse pollution, the higher the surplus the greater the risk. It is not good agricultural practice or sustainable to base applications on the amount of nitrogen which would continually build the soil phosphorus index beyond the target level.

Organic matter, soil health and resilience can be maintained and improved in other ways, without causing pollution. It is not dependant on organic nitrogen. Crop production whilst important, must be within the capacity of the environment.

28. **Do the regulations allow traces of N to be applied in products specifically designed to satisfy another need (e.g. foliar manganese nitrate for rapid response to manganese deficiency) of carbon based fertilisers designed to feed microbiology & improve soil health but contain amino acids?**

FRfW do not give nutrient limits. If there is a soil and crop need, and it can be applied without giving rise to diffuse pollution, then it is allowed. What is applied will also need to be part of a farm's whole nutrient budget.

29. **It is important to apply manufactured nitrogen fertiliser only at times when the crop can use the nitrogen. If you are applying nitrogen to meet crop demand, does that give any leeway to apply in anticipation of crop demand?**

Yes, close to the period of active growth. Fertiliser recommendations need to be made to achieve a reasonably expected yield. Keeping good field records each year helps ensure fertiliser is used efficiently, saves money and helps prevent diffuse pollution.

30. **We know that cover crops have an ability to mop up nutrients to varying degrees depending on the species, what are the rules around applying organic manures before a cover crop?**

To date, peer reviewed crop research has not shown a normal need for nitrogen ahead of cover crops. Furthermore, one important objective of cover crops is to soak up mineralised nitrogen to reduce nitrate leaching over winter and make it available close to the period of active growth in the spring. Applying readily available nitrogen to a cover crop defeats that objective. Organic manure that does not supply a significant amount of readily available nitrogen (RAN), but addresses another soil and crop need, for instance a phosphorus or soil organic carbon deficiency, can still be applied. An example of an organic manure with insignificant RAN is compost.

31. **With an increasing interest in regenerative agriculture & direct drilling in particular, what is the EA view on applying small amounts of autumn N to cereals to compensate for the lack of mineralised N due to no soil disturbance?**

To date peer reviewed crop research has not shown a need for nitrogen ahead of a no-till/min-till winter cereal crops.

32. **Is the EA happy that a simple SNS calculation will satisfy N measurement in the FRfW rules?**

In general yes, however, an exception would be where little is known of a field's cropping history or fields have received a regular supply of high amounts of organic manure.

33. **Does the EA have any major concerns with potassium or sulphur recommendations/ applications or are most concerns with nitrogen & phosphate?**

Under FRfW agricultural pollutants mean: soil, sediment, or any substance found in soil, sediment, organic manure or manufactured fertiliser, directly or indirectly introduced to agricultural land through human activity, including faecal organisms (from animal excreta), nitrogen, phosphorus, potassium, magnesium and sulphur. Whilst nitrogen and phosphorus are two of the most obvious pollutants, potassium and sulphur can give rise to diffuse pollution. Furthermore, under FRfW applications must also be planned so that they do not exceed the needs of the soil and crop. If there is a soil deficiency an appropriate fertiliser can be applied, if the soil is at the target index it can be maintained, and if in excess of soil and crop need appropriately run down.

34. **We understand that organic and fertiliser applications have to only meet crop requirement – but there is growing evidence from grain analysis that many high yielding crops are still deficient in some major elements and in some cases there is no correlation with indices (such as P). So if a grower can prove from grain analysis that fields produce grain that is sub optimal in an element despite sufficient soil indices can that be used can that be used as justification for an application?**

If the soil index target has been met, but a crop is showing signs of a deficiency then the deficiency may not be due to a lack of that nutrient in the soil. For instance, it could be due to soil compaction, low soil organic carbon, sub-optimal pH, micronutrients or soil biology, etc. If that is the case, an additional application of nutrients like nitrogen and phosphate may simply mask the actual problem.

Notwithstanding that, there are some high yielding crops that would respond to a higher amount of certain nutrients. Under FRfW you are allowed to meet but not exceed soil and crop need, so provided there is a need this can be supplied provided it does not give rise to a significant risk of diffuse pollution. Nitrogen in organic manure and fertiliser is inefficiently used, and high applications to high yielding crops can leave a lot of nitrogen in the soil after harvest which is at risk of nitrate leaching. This is why in NVZ there is a crop nitrogen limit (Nmax) which must not be exceeded. Under FRfW you must ensure that any factor which means there would be a significant risk of diffuse pollution is taken into account, including application of fertiliser in excess of normal crop requirement.

35. **Please could you give us guidance on how many soil, leaf tissue and or grain tests would satisfy EA that a grower is tailoring nutrition to crop need?**

This is not a question we can answer, and would defer you to properly qualified advice, e.g. AHDB or FACTS.

36. **Is stubble classed as cultivated land?**

Yes.

37. **What date can I start to apply manure in the spring?**

The date will depend in part on your local circumstances of weather, temperature, soil condition, etc. If you farm within an NVZ you must not spread within the closed periods for organic manures. Between the end of the closed period and the end of the following February the maximum amount of livestock slurry you can spread at any one time is 30 m3/ha. This is a good baseline for the application of organic manures when there is a soil and crop need, including outside of NVZ. However, other factors which mean there would be a significant risk of diffuse pollution need to be taken into account and reasonable precautions taken. The factors include, but not limited to, the soil type and condition of the land, ground cover, slope and the presence of agricultural land drains. The type of spreading equipment used may also be a factor, for instance whether you spread using a splash plate spreader or a lower risk precision spreader (e.g. trailing shoe or hose).

38. **What dates are 'autumn' in these rules?**

The rules do not define dates. By the meteorological calendar, the first day of autumn is always the 1st September and ends on 30th November. Winter 1st December to 28th February; spring 1st March to 31st May; and summer 1st June to the 31st August.

39. Are FRfW just a national NVZ?

No. The FRfW are general good agricultural practice for the whole of England. There are further rules required to prevent nitrate pollution if you farm in an NVZ. However, unlike NVZ, FRfW covers all nutrients including N, P, K and Mg.

40. Closed periods in England for spreading are 15th October - 31st January anyway, how are these rules different?

There is no closed period under FRfW. However, regardless of the NVZ closed periods, under FRfW applications of organic manures or manufactured fertilisers must be planned so that they do not exceed the needs of the soil or crop on the land, or give rise to a significant risk of diffuse pollution. In the autumn there is no crop nitrogen requirement for winter cereals and the risk of causing nitrate pollution may be high, which may limit your opportunity to spread at this time of year. There may be a small nitrogen requirement for other crops (e.g. grass and OSR).

41. Are those closed periods for NVZ areas only?

Yes, and they stand alone and apart from the FRfW.

42. Does this apply to all manure and fertiliser - it's the Farming Rules for Water so does it only apply to farm-based inputs, what about other products, (paper waste, sludge, etc.)

FRfW apply to all manufactured fertilisers and all organic manure (waste and non-waste). Organic manure means fertiliser derived from one or more animal, plant or human source. Examples are given in the FRfW that include paper crumble, sludge and ash).

43. Does the EA have a justified reason why it is not acceptable to apply poultry manures to wheat in autumn?

There is no nitrogen soil and crop requirement for winter cereal crops in the autumn. What nitrogen is needed is adequately supplied through the mineralisation of the soils organic matter.

Poultry manure is a particularly rich source of total and readily available nitrogen (RAN). RAN is readily converted to nitrate-nitrogen when applied at a rate that exceeds soil and crop uptake in the autumn and what isn't used leaches from the soil, which in turn can give rise to a significant risk of diffuse pollution. Leaching is particularly high on sandy, silt and shallow soils over rock. Poultry manure is also a rich source of phosphate, which must not be spread in excess of soil and crop need too. For instance, the running up of soil phosphorus indices beyond the crop target index needs to be avoided. Organic manure and soil particles lost from land with a high soil phosphorus index (e.g. through runoff) contributes to water enrichment which can be harmful to aquatic ecosystems or terrestrial ecosystems directly depending on aquatic ecosystems.

44. Will I need to build a new store, by when and is there funding?

SSAFO 4 months' storage was a measure brought in to tackle point source rather than diffuse pollution, and NVZ storage (5-6 months) to prevent nitrate pollution. Whilst both SSAFO and NVZ contribute to lowering diffuse pollution, the respective slurry storage capacities are unlikely to be enough to avoid a wider significant risk of diffuse pollution (e.g. ammonium-nitrogen and phosphorus loss through runoff and drainflow). To ensure compliance in any year we strongly

recommend all farms, in all parts of England, provide a minimum of 6-months storage capacity for all slurry produced and held on the farm, with rainfall additions calculated on a 1 in 5 year (wetter than average) basis (e.g. October to March). The AHDB slurry Wizard can be used to do this calculation (https://ahdb.org.uk/knowledge-library/slurry-wizard). In high risk site and soil conditions a greater capacity may be required.

If you do not already have the legal slurry storage capacity requirement, then you need to come into compliance ASAP. We recognise that getting finance, planning and other aspects in place can take time. However, it is important to have a plan in action. Defra have plans for a slurry storage grant scheme, from autumn 2022, which you may be able to access to help cover some of the cost. Details are not yet available. In the interim, before a store can be built, you need to reduce your risk as far as reasonably practicable. This should include ways to reduce the amount of slurry you produce. For instance, keeping rain water out and lowering the amount of wash water you produce.

45. **Can I install a temporary slurry store and what are the rules?**

A temporary store can be used provided it complies with the SSAFO Regulations. Pillow type slurry bags can be used, provided they are located and used in a way that would not give rise to pollution. Temporary stores, like any other new store, need to be notified to the Environment Agency at least 14 days before construction is to begin. Temporary is not defined in SSAFO, but we consider it to be no more than 12 months. The Environment Agency may agree a longer period. Depending on the size of pillow type bags, subject to Environment Agency approval a secondary containment bund may not be required for temporary deployments. We will be as flexible as we can, subject to a risk assessment at the notification stage. If a temporary store is likely to be used at more than one location, then this can be addressed once at the notification stage.

Cover Crops

46. **Can I apply manure in the spring (to a cover crop or grass lay), before ploughing it in and establishing a new spring crop?**

If there is a soil and crop requirement then yes.

Only apply manures to the cover crop if it has been or is being destroyed and where there is a soil and crop need for the following crop. Please also take note of any Environmental / Countryside Stewardship Scheme cover crop prescriptions where applicable, and only spread and incorporate organic manures in suitable conditions so as to avoid the risk of causing water pollution

47. **Cover crops offer multiple benefits - it isn't just to capture nutrient, though that is clearly an important one. Habitat, carbon capture, soil life. If a cover/ catch crop is fed with slow release manures with N in you increase the benefits and trap the nutrient?**

Yes we agree that cover crops offer multiple benefits including soil health and biodiversity benefits. A cover crop does not need additional nutrients and works by scavenging or holding N & P. Where the choice of cover crop is chosen to scavenge and lift nutrients, this can help to reduce excess soil nutrient indices, Mid-Tier Stewardship option SW6 Winter Cover crops prohibits the applications of manures or fertilisers to a cover crop.

48. **Is a catch crop classed a crop in the eyes of the EA?**

Yes.

49. **Is the EA carrying out inspections itself, or is it using third party information (members of the public or environment group reporting/monitoring)?**

Each year we carry out a programme of routine farm inspections. We expect the number of farm visits to increase over the next few years. We also follow up on reports of pollution incidents.

50. **If I get a visit from the EA, will I go to court or will it still work with me - what is the process?**

The Environment Agency is responsible for enforcing laws that protect the environment. We aim to use our enforcement powers efficiently and effectively to secure compliance. This contributes to our work to create better places for people and wildlife and support sustainable development.

To get the best outcome for the environment and for people, we will use the full range of enforcement and sanction options available to us. There are many variables that we need to consider while assessing any impact to the environment and our response. We aim to make sure our enforcement response is proportionate and appropriate to each situation. Our first response is usually to give advice and guidance, with an option to then issue a warning to secure compliance where possible.

We will normally consider all other options before considering criminal proceedings. Generally, prosecution is our last resort.

51. **If our organic material was applied on the basis of a recommendation from a FACTS qualified adviser and the EA deems that the application did not meet a crop or soil need, does the defence of due diligence apply?**

The FRfW have provisions for when a land manager may have committed an offence due to a reliance on information supplied by another person. If it was reasonable for the land manager to have relied upon the information then this can be taken into account by the Environment Agency when investigating whether an offence has occurred and/or whether there is a defence to any offence available to land manager.

52. **If your FACTS adviser, working with the farmer, agree there is a need then autumn applications of organic manures and sludge is allowed. Is that correct?**

Soil and crop need must be evidenced and has to be more than an opinion or belief. Soil and crop need is also only one part of the decision process, applications to land must also not give rise to a significant risk of diffuse pollution. When organic manure can be used, the nutrients applied must not exceed soil and crop need. Where the soil phosphorus level is above the target index then phosphate may be the limiting nutrient rather than nitrogen.

If a crop is struggling to establish then it is good practice to establish whether the condition of the soil (e.g. compaction and soil health in general), or other circumstances, are limiting crop establishment and subsequent growth rather than a nutrient deficiency.

53. I've been asked to have a new sample point on my farm by the EA, is this because they are trying to catch farmers out?

No. We have been monitoring the rivers for years routinely taking water quality samples as well as carrying out ecological and fish assessments. Sample points have been chosen as a site that will reflect that watercourse

54. Is the EA focusing upon key parts of the region or sectors?

The FRfW cover the whole of the England and farming sectors where crops including grass are grown. Nutrient planning under Rule 1 (Regulation 4) covers the application of fertiliser / manures onto growing crops.

The requirements for this Rule are that for each application of organic manure or manufactured fertiliser the application is planned so that they,

- 4(1)(a)(i) Do not exceed the needs of the soil and crop on that land; or
- 4(1)(a)(ii) Do not give rise to a significant risk of agricultural diffuse pollution, and
- 4(1)(b) Take into account the weather conditions and forecasts for that land at the time of the application.

55. Has anyone looked at the costs to farming of this rule and impact on food production?

The FRfW replicate measures that have been in codes of good agricultural practice since 1985.

Defra carried out an Impact Assessment as part of bringing in the legislation. Timing the applications of fertilisers to the crop requirements will save you money by not wasting and over applying fertilisers. Optimising nutrient uptake by crops to help minimise an excess in the soil. The right solution(s) to ensure compliance can prove beneficial to the land manager as well as the environment.

If you do not have sufficient manure storage than there will be a cost to build a new structure.

56. Should I still be taking sludge or other waste material in the autumn?

If you can demonstrate a soil and crop need for the use of sludge in autumn, and in addition that it would not give rise to a significant risk of diffuse pollution, it can be used. Depending on the level of phosphorus in the soil and the target index for the crop grown on that land, phosphate may be the limiting nutrient rather than nitrogen.

57. What is the EA doing to work with waste producers (water companies and food processing sites)?

We are in discussions with these industries about the implications of FRfW and requirements for timing and storage.

58. **Manure and food waste is critical for improving my soils, why is the EA stopping me improving soils and adding costs? The alternatives will be a move to carbon intensive bagged fertiliser?**

This is not a ban on using fertilisers. If there is a soil and crop need it can be applied, provided need is not exceeded. An organic manure not suitable for autumn application, for instance if it contains a readily available nitrogen content that would give rise to a significant risk of diffuse pollution (e.g. nitrate-nitrogen pollution), could be made suitable through composting which in turn can improve its value as a soil conditioner.

59. **Moving the spreading of bulky materials into spring is most of risk of causing soil health and compaction, and also maybe more run off? Higher ammonia release due to warmer temperatures?**

The rules require applications to be planned so that they do not give rise to diffuse pollution at any time of year, including the spring. The best time to apply organic manures to avoid nitrate-nitrogen, ammonium-nitrogen or phosphorus pollution varies between autumn and spring. In all cases winter is high risk for most nutrients. On some land spring application is suitable for solid manures, but others, for instance on heavy, wet, clay soils, it can give rise to soil damage and increase nutrient loss through runoff and drainflow. However, swapping one pollution problem for another is not a solution under FRfW.

A solution would be to treat a solid manure with a readily available nitrogen (RAN) content that would otherwise give rise to a significant risk of diffuse pollution, to enable autumn spreading. For instance composting, which results in a very low RAN material and which is lighter, has a lower volume, less odour and weeds, improved microbiology for soil health, is cheaper to spread, and has enhance soil conditioning properties. Ammonia loss is not covered by FRfW but can be mitigated by achieving the optimum C:N ratio for composting. Composting is an aeration process involving periodic turning, not simply storing materials like FYM on land which breaks down anaerobically and creates a potentially polluting effluent.

60. **Is keeping soil damage to a minimum a justification in the eyes of the EA or are they focused mainly on nutrient requirements?**

Diffuse pollution includes loss through soil erosion or leaching. Soil damage can increase the risk of soil runoff and managing livestock and soil to avoid diffuse pollution is as vital as managing the nutrient applied.

61. **Would the use of nitrate inhibitors added to the manure at application be acceptable, working in partnership with the 4 stage plan?**

The use of nitrate inhibitors may increase the window of opportunity to spread some organic manures without giving rise to a significant risk of diffuse pollution. Soil and crop need must still be satisfied.

62. **How many farmers have the ability to weigh a load of muck? Are we ok to estimate?**

Yes, an estimation based on known trailer volumes will suffice.

63. **Is it OK with soil tests done with our own soil testing kits or do they need to be done by a Laboratory? If DIY tests can be used, can EA (or anyone else) recommend any DIY Soil Testing Kits? I have found a couple on Amazon, but my agronomist was not very complimentary about the DIY kits.**

We recommend that you get your soil sample tested at an accredited laboratory. There are numerous commercial laboratories that can provide a soil sampling service. Tried and Tested Professional Nutrient Management and the Soil Association list a number of providers.

64. **Why has the EA any interest in Mg?**

The FRfW references magnesium as a potential agricultural pollutant. It is also reported in a normal standard suite of tests.

65. **One of my neighbours has asked me to look into something, he has a muck for straw arrangement and when the muck comes back he leaves it for 12 - 18 months to compost before applying it. He does this so he will not block his no-till drill. Under current rules muck heaps must not return to the same place more than one year in three. Whilst what he is doing is good agricultural practice how can he keep on the right side of an inspector?**

In an NVZ Farm Yard Manure (FYM) cannot be located in any single position for more than 12 consecutive months, or be located in the same place as an earlier one constructed within the last two years. This would be good agricultural practice outside of NVZ.

Storage for 12-18 months does not produce compost, composting involves regularly turning and aeration. Composting would produce a better material for no-till then simple storage and would offer additional soil and crop benefits. Whilst the resultant compost would be very low risk once stored, the risk of loss, which the NVZ rule seeks to prevent, would still occur during the composting process. How much would depend on the nature of the organic material, where and how it is composted.

66. **Any advice for outdoor pig keepers and free range poultry producers who have no control over manure on soils year round?**

The FRfW do not include the direct deposit of excreta onto land by livestock. However, outdoor pigs and poultry (and other livestock, e.g. overwintering cattle outdoors) can inflict extensive damage to soils and cause significant risk of agricultural diffuse pollution, which need to be mitigated under the rules. Land managers who keep outdoor pigs and free-range poultry and generate and apply organic manures to land that are not directly deposited by livestock, must also operate within the spreading rules.

67. **NE bans spreading FYM in the hills for the bird nesting season added to an adverse climate and high rainfall reduce the window for spreading FYM to almost nil. Has this been thought about for the uplands?**

The FRfW apply to all agricultural land. Uplands are not identified differently in the FRfW.

Any advice required around specific spreading restrictions during the bird breeding season should be sought from Natural England

68. **The EA mentioned on a number of occasions they would have to seek advice and take away a number of questions. Where is advice obtained from, and what science backs up their responses?**

Not all questions can be answered at any one time by an individual or group. In some instances legal opinion is necessary, or it is simply better to provide a more helpful answer to share more widely later. If an Environment Agency Officer cannot answer a question it is raised with National Experts.

For soil and crop need the Environment Agency refers to AHDB RB209 fertiliser recommendations. The recommendations represent several decades of research, which is periodically reviewed and updated. We are not aware of recommendations to the contrary, which have been peer reviewed. We do not take opinion or observations as advice, it needs to be backed up and for that rely on AHDB RB209 in the first instance. For significant risk of diffuse pollution we use simple tools like the MANNER-NPK software, which is freely available to farmers from ADAS.

69. **When or how can farmers using minimum tillage systems 'incorporate' manures?**

If organic matter is needed it can be lightly cultivated into the surface soil layer. Thoroughly composted manure is best and can also be top dressed.

70. **When is a cover crop a cover crop and not a brassica; what % of brassica do you need to use for it to be a brassica mix?**

The intent of the farmer needs to be taken account of given that management of a cash crop would be expected to be different to the management of a cover crop.

71. **What conversations are happing with Water UK on supply of sludge to farms for autumn application, with their FACTS advisors giving the farmers the relevant paperwork to show crop need?**

The Environment Agency has worked, and is continuing to work, with Water UK, the individual water companies and others in the Biowaste Sector. The same advice provided on the FRfW to farmers and the NFU has been shared with those involved in the production, supply and use of sludge.

72. **What conversations are happening with MHCLG/Local Authorities as Local Authority Environmental Health Officers are increasingly restricting the storage or manure on field (Environmental Protection Act) due to nuisance complaints (alternative fields fail FRfW) and they now may need to store for more than 12 months? – THIS also breaches NVZ's "**Locating and constructing temporary field heaps… move the field heap at least every 12 months **"**

National queries have not been raised on this topic. If there are local farm level storage issues, this is a matter for the farmer and their local Environmental Health Officer.

Would you like to find out more about us or your environment?

Then call us on

03708 506 506 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Or visit our website

www.gov.uk/environment-agency

incident hotline

0800 807060 **(24 hours)**

floodline

0345 988 1188 **(24 hours)**

Find out about call charges (https://www.gov.uk/call-charges)

Environment first

Are you viewing this onscreen? Please consider the environment and only print if absolutely necessary. If you are reading a paper copy, please don't forget to reuse and recycle.