

## The Anaerobic Digestion and Bioresources Association Consultation Response

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### Defra: Farming Rules for Water Regulations Review (Consultation)

The Anaerobic Digestion and Bioresources Association (ADBA) is the trade association that represents the range of interests and matters related to the anaerobic digestion of organic materials (AD) across the UK, including the collection of waste for use as feedstock. ADBA is at the forefront of the AD sector, promoting the potential of AD to cut GHG emissions and in the hardest to decarbonise sectors of heat, transport, waste management and agriculture. ADBA has around 300 members from across the AD industry, including plant operators and developers, farmers, local authorities, waste management companies, supermarkets, food processors, energy and water companies, equipment manufacturers and suppliers, consultants, financiers and supporting service companies.

There are now 675 AD plants operating in the UK producing nearly 16TWh every year, including capacity to inject nearly 90,000m<sup>3</sup>/hr of upgraded biomethane injected into the gas grid to provide heat for over 450,000 homes.

#### The ready to use technology for the hardest-to-decarbonise sectors

The next 10 years present the greatest challenge for governments around the world to respond to the urgent climate crisis we are facing. AD already reduces the UK's carbon emissions by over 1% and has the potential to reduce them by as much as 6%. The Committee on Climate Change (CCC) has consistently identified biomethane as a "low regret option", advising that greater quantities of the green gas are urgently required, and that AD needs to be used more widely on farms if the UK is to meet its fifth carbon budget between 2028 and 2032. AD is the ready-to-use technology to cut emissions in the hardest to decarbonise sectors of heat, transport, waste management and agriculture by reducing emissions from rotting food and farm wastes, providing low-carbon biofertiliser, and displacing fossil fuels with green gas.

#### AD at the heart of a circular economy

AD closes the loop, developing a circular economy by drawing value from waste and feeding its value back to the system. Organics processed through AD produce renewable energy, green CO<sub>2</sub> and biofertiliser which, in turn, can be returned to the land to grow more plants. AD increases efficiency of farms, cities, and businesses – nothing is wasted.

Circular cities can recycle their food and garden waste and wastewater into fuel for local buses; power and heat for homes; digestate for urban gardens; and bio-CO<sub>2</sub> for urban farming, industrial processes or carbon storage. Circular farms can capture the methane emissions from manure and farm wastes to provide community energy to rural areas; generate clean fuel for tractors; diversify rural incomes; and help replenish depleted soils. Circular business can recycle inedible organic residuals through AD to fuel transport fleets, heat, and power industrial processes, replacing fossil energy needs, using bio-CO<sub>2</sub> in industrial processes, and recovering nutrients to spread back to soil.

#### Cost effective carbon abatement

AD delivers multiple carbon savings. Biogas upgraded to biomethane displaces fossil natural gas, but also prevents the release of methane from organic wastes directly into the atmosphere, for example when food waste is left to break down in landfill. AD also

reduces emissions from rotting manure, farm wastes and slurries, while still providing a low carbon, renewable biofertiliser. The CCC itself claims that AD *needs* to be used more widely on farms if the UK is to meet its fifth carbon budget.

The following provides indicative estimates of the cost per tonne of CO<sub>2</sub> saved, based on average load factors and average cost per MWe capacity (see Appendix I for calculation):

Offshore wind	≈	£825 per tonne of CO <sub>2</sub> saved
AD	≈	£1,100 per tonne of CO <sub>2</sub> saved
Solar PV	≈	£2,300 per tonne of CO <sub>2</sub> saved

### Local energy security and local recycling infrastructure

AD is good for the UK’s energy security. It is home-grown and supplies are constant and reliable. AD is delivering home-grown green energy now and can continue to do so. AD can contribute far more to the UK’s energy security with the potential to deliver 26% of domestic gas or total electricity demand in the UK, whilst also reducing imports and curbing carbon emissions.

AD is highlighted in the Government’s Resources and Waste Strategy for England as representing “the best environmental outcome for food waste that cannot be prevented or be redistributed”. To realise the ambitions of the Strategy and meet UK recycling targets, mandatory separate food waste collections are required throughout the UK. This will require more food waste AD capacity to treat and recycle the resulting separated food waste, and support for local authorities in their adoption of suitable recycling practices.

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## Farming Rules for Water Regulations Review – Defra’s Terms of Reference

### 1. Background

The government has introduced a large amount of regulation to prevent nutrient pollution and protect water quality. In 2018, the Farming Rules for Water came into force and the government has committed to reviewing these by the 2<sup>nd</sup> April 2021. This follows the Department for Environment, Food & Rural Affairs review of the Nitrates and SAFFO (Slurry and Silage) Regulations, the results of which will be made available shortly. This review of the Farming Rules for Water are part of Defra’s ongoing ambition to promote good nutrient management and set up our long term ambitions for work in this area.

When the Farming Rules for Water Regulations (FRfW) came into force in 2018. The objectives were to:

- ❖ encourage better land management
- ❖ reduce and prevent water pollution caused by agricultural practices
- ❖ reduce and prevent soil erosion caused by agricultural practices
- ❖ improve resource efficiency

These regulations apply a national baseline for Agricultural Practice for Water across England. The regulations tell Farmers what they must do to manage manure, fertiliser, and soil to prevent runoff, erosion, and leaching.

### 2. Objectives

- a) To conduct a review that:
  - i. Examines the performance of England’s regulatory framework for FRfW since implementation, in particular identifying the awareness and comprehension of these regulations by the agriculture sector, identifying the objectives intended to be achieved; an assessment of the extent to which those objectives are being achieved; and an assessment of whether they remain appropriate objectives;
  - ii. Assesses the effectiveness of the restrictions imposed by FRfW in reducing or preventing water pollution caused by agricultural sources, and;
  - iii. Takes into account available scientific and technical data.
- b) To publish a report on [legislation.gov.uk](https://www.legislation.gov.uk) by 2<sup>nd</sup> April 2021 on the findings of (i) and (ii) above.

### 3. Key Considerations

In addition to assessing the objectives above (2.a–b), the review will consider the following factors:

- a) The effectiveness of the outcome based regulatory model which FRfW is based on
- b) Areas of overlap and opportunities for harmonisation with the Nitrates, Silage Slurry and Agricultural Fuel Oil Regulations (SSAFO); and
- c) The 25 Year Environment Plan and future opportunities for reform of the regulatory regime.

### 4. Process and Evidence

The review will utilise evidence from a wide range of stakeholders, academics, industry stakeholders and public body officials, as well as other interested parties.

Evidence on how the regulations are performing environmentally and an assessment of enforcement activity will be collected and used to inform the review and any outcome recommendations.

There have recently been a significant number of Defra consultations inviting stakeholder input on a number of environmental measures with many of these policy consultations and legislation including provisions for FRfW regulations. An analysis of the following publications, amongst others, will be used to inform the review on stakeholders’ positions:

- ❖ Health and Harmony Consultation (February 2018)

- ❖ Agriculture Bill Written Evidence (October/November 2018)
- ❖ Environmental Audit Committee on UK Progress in Reducing Nitrate Pollution (January 2019)

Small-scale stakeholder engagement will be used to verify and supplement this information.

A formal public consultation will take place should recommendations to revise the operation of the regulations arise in light of the initial report under objectives 2. iii. above. This will provide an opportunity for the public to engage and shape the future operation of the FRfW regime.

An informal steering group will be established within Defra to ensure this work remains focussed and on track for delivery.

## 5. Output

A report assessing the current performance of the regulations and whether these objectives remain appropriate, is to be published on legislation.gov.uk by 2<sup>nd</sup> April 2021.

This report will contain a number of recommendations for the future. Short term recommendations will take into consideration measures relevant to and feasible for the immediate operating period, whilst long term recommendations will look at the future of the agricultural pollution regulatory system.

## Consultation Questions

To conduct a valuable and informative review, it is crucial Defra consider evidence and suggestions from a range of sources and therefore have invited ADBA and its members to provide valuable input given your knowledge of the topic. To get the most valuable engagement, Defra have drafted some key questions based on an analysis of previous responses to some of Defra's largest consultations and would be grateful for any feedback you can provide on the following questions.

The feedback provided from ADBA, and its members, comes from an online survey and meeting that was hosted on 7<sup>th</sup> January 2021. The consultation meeting included the Farming Rules for Water review and the feedback has been set out in this document by Defra. The responses to the questions posed by Defra refer to the 'Rules' that are [The Reduction and Prevention of Agricultural Diffuse Pollution \(England\) 2018 Regulations](#), which are more commonly referred to as the 'Farming Rules for Water'.

### 1. Do the rules pose any barriers to your work? If yes, what are they?

Yes	3	21%
No	11	79%

The ADBA online survey has shown a broad consensus that the Rules do not pose a barrier to operations. The survey had 15 respondents, which did not answer all the questions. However, the virtual meeting that had 55 attendees did not reflect this. The survey participants that answered 'yes' to this question understand the major implications of the Rules. It is felt that those who answered 'no' are not fully aware of the barriers posed by them. This is not because the land managers do not follow the Rules but instead is due to the lack of clarity surrounding them, which we address throughout this consultation.

The barriers that were mentioned during the survey and the members meeting were:

- ❖ The restriction on the amount of digestate that can be spread during the summer/autumn spreading campaign. This can shorten the spreading window and is often due to poor communication of the guidance and Rule 1. Clarity is needed on this point to ensure that all parties recognise the need for flexibility when it comes to nutrient planning, as soil, crop, topography, and climate all influence when and what to apply. We received mixed views from all lines of industry feedback. As such, it would be useful for industry to understand the process by which 'off season' land spreading applications are determined by the Environment Agency, and to communicate this process clearly with the industry. The AD industry, and wider organics sector, would benefit from having a clearly outlined position on:

- Whether the EA considers the closed period applicable to all materials containing any proportion of RAN (Readily Available Nitrogen) or are RAN containing materials still considered compliant in autumn depending on the actual RAN content?
- Is the classic planning approach of increasing soil P indices to target levels still permitted, even though these are not for the immediate need of crops? Or is a de facto closed period for P-rich materials applied?
- How is the regulator ensuring a level playing field between regulated and unregulated materials that might be applied to land? This question has arisen as there is the feeling that larger AD facilities are often targeted over livestock manures and would like confirmation that the regulation is being applied in a proportionate, fair, and consistent manner for all. This could be shown by outlining the current breaches of compliance to see which sectors are consistently under-performing in achieving the Rules objectives.
- ❖ A survey respondent reiterated the above concerns about the Environment Agency’s interpretation of crop requirements and that this can lead to the prevention of autumn applications of biosolids. This creates a disparity between biosolids and farmyard muck, which has not been treated by AD and continues to release harmful emissions. Again, this is not a fault of the regulator but simply a point that requires more clarity on a national scale to avoid spatial differences.
- ❖ Finally, one participant in the survey mentioned that a large proportion of the land has drainage under the ground – field drains – that make it difficult to comply when considering pollution potential. This is another point of clarity that could be provided by the regulator.

That most of the survey respondents answered that the barriers do not affect them does not reflect the feedback from the meeting that explained the Rules in more depth. Many of the barriers that arose from the work are not mistakes in the Rules, but a lack of clarity and the generic nature of them.

## 2. Are you aware of how the rules affect you? If so, how do they?

Yes	6	43%
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No	8	57%
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The survey feedback shows the respondents were split between ‘yes’, they understand the rules and ‘no’. The online meeting did raise the potential issue of the effects of the Rules not being fully disseminated to, and therefore understood by, all land managers.

Of the survey participants that answered the survey ‘yes’ the main effect was surrounding the application of digestates. Participants explained that digestate may no longer be applied to crops with an autumn nitrogen demand unless there is a crop need within RB209 i.e., oilseed rape, stubble turnips, grass that is actively growing or limited cover crop such as oil radish. This leads to restrictions around the volume and timeliness of digestate applications on certain crops. So, as mentioned in this consultation the regulator should ensure clarity around the Rules and in particular Rule 1. The regulator needs to clarify if Readily Available Nitrogen (RAN) is the determining factor that constrains applications or whether other variables are controlling factors. Confusion has also arisen around the application of digestates to cover crops. This could lead to disincentivising cover cropping that serves to protect soils, increase carbon sequestration, and reduces soil compaction and erosion amongst other benefits.

Finally, one survey participant confirmed that they understood how the rules affected them as they provided confirmation of what had been done under various other codes of practice. It was also mentioned that their biosolids recycling strategy may need to be reconsidered to a less carbon sustainable one to comply with the Rules.

## 3. Have there been any unintended effects of the rules on your work? If so, can you give examples?

Yes	2	13%
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No	13	87%
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## Reduced Spreading

The online survey only reported two participants who stated they have seen unintended consequences of the Rules. The first response stated, which was reiterated in the online meeting, the impact of the Rules and their restrictions around autumn applications of biosolids. The issue arises due a lack of clarity on the stability of the nutrients that are applied. It would be beneficial to both industry and land managers, if clarity around autumn applications was provided, and whether regulators are prohibiting all organic manures to land with any RAN. The issue with prohibiting biosolid applications in autumn is that as well as nutrients they can provide organic content and phosphorus; was it the initial intention of the Rules to prevent these applications due to materials having any, even if very low levels of RAN content? This shows that the regulator could be using nitrogen as the determining factor for all applications or does not fully understand the chemical and biological implications of soils naturally high in certain nutrients e.g., high-K content clayey soils, where smaller, agronomic-led additions of specific nutrients to the soil have scientifically demonstrated a benefit on yield. So, it is our fear that the Rules' positive role in protecting water pollution could also be a barrier to breaking the yield plateau that has been seen in crop growth.

## Changing Crop Type

Another unintended effect is that arable cropping patterns may change to accommodate autumn applications of organic manures. This could lead to seeing conventional crops replaced with those that can accept autumn applications of digestate such as oil seed rape. A consultant for several farm-based AD plants stated they are beginning to see this.

## Spreading Season

The legislation, regulator, and Government need to ensure that they fully understand the 'open/spreading season'. The periods where organics can be applied to land still do not allow land managers to spread freely during this period as they must also meet crop and soil needs, which could lead to unintended shifts in cropping patterns. The prevention of spreading on frosty mornings by the rules was also mentioned by one survey participant.

Some of the limiting factors that were raised and are not addressed in the Rules are:

- ❖ The Rules fail to understand the limitations of current spreading technology to be able to spread certain materials onto an established crop e.g., ability of muck spreaders to spread sewage sludge beyond 24m, therefore requiring high proportions of N/P (up to 300kg/Ha of P<sub>2</sub>O<sub>5</sub> in a single application) to be applied ahead of autumn-established, winter combinable crops. This places greater emphasis on spreading to delicate-soil, spring applications.
- ❖ The difficulty to deploy large, heavy machinery – usually this includes all spreading equipment – in the spring when soil conditions are delicate. There is a greater risk of soil degradation or pollution during Spring as a result of heavy machinery so it can be difficult to apply the necessary volumes of organic materials outside of the summer months when the soils are then well structured, and workable. Soils are often at, or near to, water holding capacity in the Spring that make them near-inappropriate conditions to spread. So, the window for spreading is not wide enough to achieve targeted crop response from application.
- ❖ Extreme weather patterns in Spring can make nutrient applications difficult to plan due to rapidly changing conditions and fields that are often near water holding capacity, which poses the risk of land drains running.
- ❖ Changing farming practices and systems – no till or controlled traffic – mean that incorporating organic manures is not always possible. So, in certain systems greater emphasis is placed on spreading at width rather than injection, which then conflicts with the notion of incorporation within 24-hour period.
- ❖ The Rules, and associated guidance, do not take into consideration the ability for machinery to spread at width (up to 36m) and achieve an evenness of spread when applying at such low application rates to achieve small nutrient additions e.g. food waste digestate onto WOSR supplying 30kgN/Ha. It is not possible to achieve application rates of 5m<sup>3</sup>/ha of whole digestate.

On a business point that is not related to the rules directly is that one of the survey participants mentioned their consultancy has been securing additional storage provision for its clients since 2018. So, the rules have created a business benefit for consultants but on the other hand an additional costs and administrative burden for land managers. This point does not measure the effectiveness of the rules as a pollution mitigation mechanism.

## Credibility

The lack of agronomic understanding, communication of the Rules and their enforcement is also leading to some of our participants to believe that FACTs qualified advisor's credibility is being undermined as what they often recommended does not align with the regulators view of compliance. This had led to some parties feeling they are being stopped from spreading even when conditions are good to spread or not using organic manures due to the fear of non-compliance, which leads to artificial substitutes being used. The fear to use organic manures is potentially very worrying at a time when we are looking to promote the circular economy, improve food security, and move away from energy intensive products such as artificial fertiliser.

#### 4. Are the rules effective in their aim to provide a minimum baseline for land managers?

Yes	4	27%
No	11	73%

Overall, the feedback we have received concludes that the Rules are not effective in their objective of providing a baseline for land managers. The main reasons that participants responded 'no' were:

- ❖ The extremely vague nature and lack of consideration to variables such as soil type, soil management regimes, and crop varieties e.g., no-till/direct drilling. The issue arises as modern farming is subject to a blanket management approach that cannot be adopted due to modern practices, and evidence-based spreading that has been derived from more than 5 years of digestate applications for some land managers.
- ❖ Concerningly, two participants in the online survey mentioned that they do not know what the rules are, and one had to actively look the rules up. The same response outlined that farmers who are responsible for pollution should stick to the rules and be actively regulated. This shows that the Rules are not only ineffective but not adequately signposted to land managers. The regulator needs to ensure they are clear if the enforcement is intending to continue as an advice-led approach, which industry would agree with until we are clear that all land managers are aware and understand the Rules.
- ❖ The Rules were not viewed as effective due to the lack of knowledge and difference in interpretation by local EA officers, hence why a blanket approach of the rules is not currently effective. The concern of industry is that the regulating officers are often not FACTS qualified and therefore do not have a broad understanding of the wider farming system. With many land managers and AD operators now having more than 5 years of experience using digestates, a move away from the blanket approach could be adopted and applications could be based on knowledge and evidence-based research.
- ❖ Another participant stated that the rules should consider a risk assessment against the leaching and pollution effects rather than taking a blanket approach to the rules. This point relates to those previously mentioned on interpretation and clarity.

Finally, industry would benefit from understanding the regulators' processes regarding applications and different organic materials. So, points the AD industry, and all land managers, would benefit from understanding are:

- ❖ Clarification that the regulator is ensuring a level playing field across all organic materials. This should confirm that waste derived AD materials, livestock manures, and any other organic materials are viewed the same by the Rules. We would also recommend that the Rules incorporate a reporting aspect that highlights where most issues and non-compliances arise, which could allow target communications to specific sectors of the organics industry.
- ❖ The simplicity of the Rules and whether this is often a root cause of why they are rejected, given that more in-depth nutrient planning was rejected from the initial rule set.

With an understanding of the above the EA could share their 'rules for rejection or non-compliance' with the industry or provide worked, hypothetical, examples of land spreading that they would deem inadequate and compliant. This would allow industry to ensure applications are not submitted that will be immediately rejected and could save the industry and regulator time and finances.

The feedback received also acknowledged the positive impacts of the rules and the awareness they have raised of water pollution in the agricultural sector. One consultant agreed they have provided a minimum baseline however still require greater clarity as the guidance is loose in interpretation of the Statutory Instrument.

## 5. Additional Comments

### Communication and Credibility

Participants in both the online survey and meeting stated that the poor communication, lack of agronomic understanding, pollution risk, and mitigation measures are all causing problems on the interpretation of the Rules and the Statutory Instrument. So, if land managers are being incorrectly advised or regulated regarding spreading times, requirements, and conditions it would be beneficial for all land managers to be able to access Government support. This support could fund additional storage, technologies, and application research to ensure organic manures are providing a service to the environment. Support would also allow the potential of the Clean Air Strategies requirements to be rolled out at an earlier date.

### Wider Benefits of Organic Fertilisers

The review feedback we received has not only addressed the Rules and potential pollution from organic manures but also highlighted wider environmental and climate concerns. The Rules need to tackle water pollution, but they also need to align with the Environment Agency's 25 Year Plan and acknowledge that organic manures not only provide a supply of nutrients but add organic matter that needs to be replenished in soils. The organic matter aspects of manures can mitigate the consequences that may arise from floods and droughts whilst supporting CO<sub>2</sub> sequestration. So, even though the Rules' objective is clearly to protect water from diffuse and direct pollution, they need to acknowledge the additional benefits that using organic manures and organic fertilisers can provide over artificial fertilisers. The benefits go beyond chemical addition and aid physical structure and biological stimulation.

The Rules need to acknowledge that the management of individual organic manures leads to them being applied to the soil for different reasons e.g., application of sewage sludge and compost in the autumn. The varying management practices are due to certain organic manures being a method of soil conditioning rather than simply nutrient supply. So, reiterating the answer to Question 2, industry needs clarity from the regulator as to whether a product with any RAN will be prohibited from autumn applications even when it is beneficial for other reasons.

Fertiliser use has increased significantly across UK agriculture while yields have begun to plateau. This is indicative of wider soil degradation, loss of topsoil and the increased uptake of cultivation techniques that have resulted in reduced proportions of organic matter within our soils. Michael Gove has publicly stated a similar message. The severity of the potential loss of soils in the UK should lead to us promoting the use of carbon neutral, recycled organic manures to aid 'soil health', improving soil chemistry, and promoting biological activity. We should not be inadvertently making land managers concerned around using organic manures.

### Alignment

An operating member mentioned that since they operate within a Nitrogen Vulnerable Zone (NVZ) they have been required to comply with the same set of requirements as laid out in the Rules for some time now. They have stated that the new Rules do not really change anything for them as a result, and that they have always farmed in accordance with RB209 recommendations. This means they have limited autumn N-applications to crops with a defined N-requirement (oilseed rape) and have established enough storage to enable them to comply comfortably with the regulations. As a result of following this they have not had any pollution incidents from digestate spreading and are able to make good decisions that benefit the farm in terms of best use of nitrogen, impacts on soils etc. The operator took this approach right from the start of operations which was initially challenging, and they imagine other operators in the industry will be facing similar challenges now. The operator stated it took time to establish the necessary storage and ensure a high degree of control over cropping plan decisions on the adjacent farm and have been able to make decisions about farm management that optimise opportunities for digestate use at key spreading windows. They believe that the measures included in the Rules would be a much greater challenge for operators without the same degree of flexibility over their land as well as other businesses and farming practises.

However, another operator member, supported by the wider industry view, has stressed the potential for a degree of confusion amongst landowners and advisors alike due to the conflict around views with the current NVZ designations and the rules for complying within those areas. So, again we see it as essential that the regulators are more succinct in their advice-led approach to ensure that landowners are aware of the increased benefits of utilising material in a positive economic, agronomic and environmental manner. The regulator should not just be providing information on the negative connotations of using organic manures, which could undermine their desire for a circular economy.