Written evidence submitted by The Game & Wildlife Conservation Trust (FR0069)

Game & Wildlife Conservation Trust's response to EFRA's call for evidence on Farming Rules for Water

The Game & Wildlife Conservation Trust (GWCT)
We are a leading, independent UK wildlife conservation charity conducting scientific research into Britain's game and wildlife to enhance the British countryside for public benefit. We use our research to provide training and advice on how best to improve the biodiversity of the British countryside. We employ 22 post-doctoral scientists and 50 other research staff with expertise in areas such as birds, insects, mammals, farming and farmland ecology, fish and statistics. The GWCT's Allerton Project, our demonstration farm in Leicestershire, undertakes research into the effects of different farming methods on wildlife and the environment, and shares the results of this research through educational activities for practitioners and the public (https://www.allertontrust.org.uk).

Terms of reference

1. What impact, if any, are the EAs implementation of Farming Rules for Water Regulation prevents farmers from spreading organic fertiliser?
2. Are there change that should be made to the rules or how they are applied?

We have chosen to answer Q1 and Q2 together as both have been covered extensively in stakeholder commentary such as the NFU, AHDB and BASIS FACTS and in the debate on 1st November in the House of Lords brought by Lord Carrington (https://hansard.parliament.uk/lords/2021-11-01/debates/64EC4116-7648-4235-B66F-4B75B29721E1/FarmingRulesForWater).

We concur with the comments made, the confusion presented by the Environment Agency's RPS and in particular draw the committee's attention to the research undertaken by the AHDB which highlighted that Spring applications do not necessarily minimise the risk of agricultural diffuse pollution. In this respect we concur in particular with Lord Colgrain's point about adopting a risk-based approach to the autumn applications so that where the risk to water is low, organic material can still be applied on arable land rather than the current approach taken in the RPS. This would be particularly pertinent at the moment as the high price of nitrogen fertilisers is resulting in the increased importance of the nutrient value of organic manures such as FYM. In addition, there appears to be a lack of joined up thinking across government and regulatory agencies, with Defra encouraging greater use of organic manures on-farm as a means of improving soil health (with subsequent benefits for reducing diffuse agricultural pollution) as part of its ELMs plans.

We would in particular like to emphasise our concerns that the Farming Rules for Water and associated RPS will force growers to:

a) store more organic manures over winter in temporary field heaps (and for longer periods of time) or slurry lagoons that do not necessarily have the required capacity resulting in overflows (AHDB estimated that without access to grass an extra 9 months of storage is likely to be necessary), and

b) move the application to the Spring when number of days available for safe spreading soils is likely to be fewer than the Autumn as soils are likely to be nearer field capacity i.e wet which in turn will lead to more soil damage and compaction (particularly on clay and medium textured soils) resulting in increased field run-off and erosion. This includes the top-dressing of autumn cereals in the Spring which would not be incorporated (as it would in the Autumn when applied in front of the drill) resulting in more air and water pollution (i.e. pollution swapping - ammonia to air and phosphorus to water).

It should also be recognised that step 3 of the Environment Agency's Contingency Plan for the RPS on Farming Rules for Water stretches the credibility of what farmers are willing to attempt. That a valuable resource of nutrients (particularly given our point about the cost of fertilisers at the moment) would be transported to an anaerobic digestion plant or sewage treatment works for disposal rather than spread on fields is to demonstrate a poor understanding of the realities on the ground, in terms of the logistical, economic and environmental challenges and costs involved. Policy must be consistent, practical and grounded in reality to retain credibility.

Our final point is that whilst we applaud this Government's ambition to clean up our freshwaters through increased regulation, the focus should not just be on the agricultural industry, which is, often incorrectly, accused of pollution that has come from other rural sources such as Sewage Treatment Works and septic tanks. The relative contribution of domestic and agricultural sources varies with scale and between catchments but research that we have contributed to highlights the fact that sewage treatment works are consistently a major source.

3. What are the best ways/methods of preventing agricultural diffuse pollution?

We remain of the view that if farmers and growers follow the rules (especially buffer zones and slope gradients) so that autumn applications are well managed they remain the best way of getting organic manures onto the land in the most risk-averse way. We acknowledge that there is bad practice out there but that should not result in the vast majority of those who do comply being penalised. There are also different issues to consider around different types of organic manure, which can have very different properties and risk factors.

However we would emphasise the value of wider buffer strips to reduce all manner of agricultural pollution, as well as the more precision application of digestate and liquid manures – both of which are to be encouraged in ELM. The funding available in the Farming Investment Fund and associated grant schemes is therefore to be welcomed in regard to aiding investment in both precision technologies and modern storage infrastructure, but continued acknowledgement should be made that many smaller farms, especially in the tenanted sector, will still struggle to find sufficient capital to invest at the speed required.

In our Water Friendly Farming project (https://www.allertontrust.org.uk/research/water-friendly-farming/) we have used a combination of practical empirical research and hydrological modelling to explore the potential for improving the aquatic environment in agricultural catchments. Combined with replicated experiments on our own farm, these

provide a guide to potential approaches that are applicable to a large part of lowland England.

The main message is that no single measure will deliver the required benefits and that the efficacy of some measures is dependent on local conditions such as soil type and topography. Wide buffer strips have an important role but their efficacy is compromised by undulating topography (and concentrated flow) and field drains. Sediment traps have a role on sand and silt soils but less so on clay soils. Reducing soil compaction and increasing organic matter increase water infiltration rates, reducing surface runoff. Direct drilling can reduce soil and nutrient loss to water through improvements to soil health and function. Incorporating grass leys into rotations can improve water infiltration rates, especially where deep-rooting cultivars are adopted, and soil compaction and intensive grazing are avoided.

In addition to the WFF research we also draw your attention to work by Zhang et al 2012 in the Hampshire Avon catchment. This found that current mitigation measures reduced the amount of phosphorus lost by 10% and nitrate by 4% and that the theoretical maxima if all technically feasible measures were installed would be, respectively, 47% and 22%. This suggests that the theoretical benefits expected are not necessarily realised in practice.

We are also concerned that Farming Rules for Water are ONLY considering water and focussing strongly on nitrate. In many circumstances it will not be practical for farmers to apply manure in spring, leading to changes in practice which increase the risk of other emissions including ammonia to air, and phosphate to water (as mentioned above). This lack of whole cycle thinking will result in the unintended consequences such as pollution swapping.

Given there is growing evidence of what works and what is less successful with soil type, weather events and timing of operation (in relation to crop cover) the key variants in the magnitude of run-off and diffuse pollution, ELMs could be used to encourage the adoption of the mitigation measures mentioned above, as well as soil management and health, to operate alongside the FRW. There is a need for schemes that have the potential for the geographical targeting of measures that is necessary for optimum efficacy.

It is important to consider both nutrient and sediment loads and concentrations as the former represent the greatest loss from the system and impact on coastal waters, while the latter has greatest ecological impact in freshwater bodies, from ditches and ponds to rivers and lakes. Concentrations obviously increase with low flows in summer, a factor that is expected to increase with climate change.

Finally it is important that nutrient use efficiency is encouraged. Currently NUE on arable farms is c60% although there is scope to increase this to 80%. Emerging research results suggest that better soil management may reduce the stores of phosphate in soils and the need for additional applications. We need the science to understand what the safe level of nutrients in the soil is and the understanding of how to maximise efficiency. In this way we can reduce losses to the system. In this sense, provisions to require more expansive soil nutrient sampling in ELMs are to be welcomed.

Game & Wildlife Conservation Trust – 10th December 2021