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Llywodraeth Cymru
Welsh Government

Welsh Government
Consultation – summary of response

Nitrate Vulnerable Zones in Wales

Review of the Designated Areas and Action Programme to Tackle
Nitrate Pollution in Wales

February 2018

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Introduction

Purpose of Consultation

On 29 September 2016 the Welsh Government published a consultation on the review of Nitrate Vulnerable Zones in Wales. The EC Nitrates Directive (91/676/EEC) is intended to reduce water pollution caused by nitrates from agricultural sources and to prevent any further pollution. The Directive is transposed in Wales by the Nitrate Pollution Prevention (Wales) Regulations 2008. Since the introduction of the Directive in 1991, Member States are required to assess and designate areas as Nitrate Vulnerable Zones (NVZs) and produce an Action Programme of measures to reduce levels of nitrogen entering watercourses.

Consultation period and distribution

The Welsh Government Consultation ran for a 12 week period from 29 September 2016 to 23 December 2016. The consultation was sent to a wide range of stakeholders and published on the Welsh Government website.

Consultation responses

The consultation document focussed on both the designation of NVZs and the Action Programme to be applied to these areas. A total of 256 responses were received from individuals and a variety of organisations, including 102 identical letters. 54 respondents requested confidentiality. With the exception of those who requested confidentiality, respondents' names are listed at Annex A. A breakdown of responses is as follows:

Assembly Members	- 3
Farming membership organisations	- 4
Individual citizens	- 115
Farmers	- 75
Angling Association.	- 25
Water Company	- 2
Conservation / Trusts	- 15
Businesses	- 17

Some respondents submitted a "free standing" response and did not answer the questions set out in the consultation paper. In these circumstances every effort has been made to link responses to specific questions. Comments that do not relate to the specific questions have been considered where relevant to the consultation. A variety of viewpoints were received and no consensus or unanimous agreement emerged.

Summary of the consultation responses by question

This section provides a summary of the answers to each question posed within the consultation document.

Question 1 - Do you prefer Option 1 (continuing with discrete NVZ designations), or Option 2 (applying the Action Programme to a 'Whole Wales' NVZ designation)?

240 respondents provided comments to question 1 including 95 identical letters. 151 respondents said they preferred option 2 because they believed Option 1 would do little to address the widespread problems that are occurring as a result of agricultural pollution. A number of respondents said a 'whole territory' designation would be even-handed, provide clarity for the farming industry and avoid competitive disadvantage to some farmers.

36 respondents said they preferred option 1 for a variety of reasons –

the type of farming carried out in Wales does not produce liquid slurry

option two would impose an inappropriate regulatory burden on the managers of 92% of land in Wales, based on the Natural Resources Wales' identification of 8% of land to be covered by Nitrate Vulnerable Zones under option one

Farmers in Wales can ill afford more financial or regulatory pressures at present, so it is not feasible to subject all landowners in Wales to such onerous work when the vast majority of them use little nitrogen fertiliser

Two respondents believe there are significant shortcomings in the application of these Regulations and associated Action Programme Measures (APMs) in Wales.

53 people said they didn't prefer either of the options. 16 respondents said this was because the evidence that has been collated is not complete and further evidence and monitoring is needed. There is no evidence to prove that there are any benefits from the Action Programme proposed.

Question 2 - Do you agree that a refundable fee of £250 is an appropriate amount to charge?

200 people responded to this question. 106 respondents said this (fee) would not be required with a Wales wide approach while two respondents suggested it should be raised to a refundable £500 / £1,250 to ensure a reasonable but proportionate deterrent to farmers wishing to submit an appeal. One respondent suggested a sliding scale fee based on farm size.

62 people disagreed with this question citing the affordability of some farmers and the short timeframe appeal window. One respondent suggested that the appeal fee should be in line with the CAPM appeals process - Stage 1 appeals are free and Stage 2 appeal cost £100 for a written appeal and £50 for a verbal appeal.

One respondent suggested a higher fee but only 75% of any fee refunded so that costs to the public purse can be mitigated, while another respondent questioned why Welsh Government was proposing to charge a fee and thought it was to deter farmers from appealing.

32 respondents agreed with a fee at this amount saying they thought the figure was fair and reasonable but a whole Wales approach would eliminate the need for an appeals process. One respondent suggested it will incentivise those submitting appeals to give due credence to the process and where those appeals are successful the fee will be refunded anyway.

Question 3 - Do you think cover crops should be included in the Action Programme?

POSITIVE - should be included – 165

NEGATIVE - should not be included – 24

NEUTRAL – should be included as a voluntary measure – 31

The majority of respondents considered the suitability of fields for arable crops should be the first consideration, stating that those with high slopes or vulnerable to flooding and soil loss should not be used for arable crops. Consultees referred to problems caused by the growing of maize, potatoes and other crops in fields vulnerable to flooding or surface water runoff. The use of cover crops on land suitable for arable crops was supported because of the benefits of reducing nitrate and phosphate losses to water and for the prevention of soil erosion to protect this valuable resource, as well as reducing siltation.

Those supporting the measure also raised concerns about stubbles which offer little protection to soils, such as maize stubbles. Problems caused by the growing of maize featured in a number of responses. The responses highlighted the chemical dependency linked to the potential for bare soil to be left over the winter period, which, due to practical issues in establishing a cover crop, leads to increased nitrate, phosphate and pesticide pollution, as well as soil loss and siltation from maize production. One response indicated the removal of over-winter stubble of spring-sown crops would be detrimental for farmland birds and should not form part of the requirement.

Responses were received from individuals reliant on private water supplies, stating that nitrates and phosphates have a detrimental effect on drinking water.

Both those for and those against the proposal raised concerns about the practicality of the measure due to the typical weather conditions in Wales, for example where harvesting of crops is delayed the potential for establishing a cover crop is reduced and the potential for the operation to be detrimental to the environment is increased. The consultees indicated that any cover crop proposal would need to be based on practical measures and farmers must not be required to establish a cover crop irrespective of land and weather conditions, otherwise the potential benefits of the measure would be negated. The availability of labour and machinery at appropriate times was also raised as a complication in achieving compliance with the proposal.

Many of those who did not agree with the proposal were of the view that the measure should be voluntary and encouraged due to the potential for inflexible rules to require activities that would be damaging to the environment.

A number of those against the proposal took the view that as the measure is not a mandatory element of the Nitrates Directive, it should not be included. Some felt that as cover crops were already included in cross compliance there is no need to extend these requirements. It was also stated that as the reduction in nitrate and phosphate losses would

not be uniform across holdings affected, the measure may not be suitable in all circumstances. It was also mentioned that Welsh Government opted not to incentivise the deployment of cover crops via greening under Pillar 1 of the Common Agricultural Policy.

Respondents were concerned that the proposal to not allow a rough cover option would be detrimental to potato production as this would prevent the breakdown of soil by winter frosts before planting, which would be detrimental to yields. It was also remarked that there was no evidence the existing rough cover risk assessment required within cross compliance had been breached, which does not support a more restrictive policy. A number of responders believed allowances should be made for nitrogen fixing crops.

While one responder stated that the cost of establishing a cover crop would, in some circumstances, render the previous crop unprofitable, another respondent proposed that while the cost to the business should not be under-estimated, the benefits are substantial due to the potential for increased crop yields from captured nutrients, improved nutrient cycling and increased organic matter.

In particular, the proposal was considered potentially detrimental to potato production. Winter ploughing is a practice that is in widespread use within the potato sector and it was argued potato crops are particularly vulnerable to poor seedbed preparation, with impacts on yield and quality. It was highlighted that the proposal seriously threaten the Protected Geographical Indicator (PGI) status of Pembrokeshire Early Potatoes granted under the European Union's protected food name (PFN) scheme. The specification under Council Regulation (EC) No 510/2006 describes the method of production including soil preparation. This refers to soil preparation beginning in January with ploughing. The field is then left to weather to allow the upturned soil to breakdown. When soil temperatures are approaching 10°C, which is usually in the last two weeks of February, the soil is power harrowed to further break it down to make it as fine and free draining as possible. The soil is then ready for planting.

Question 4 - If so, have we identified the correct circumstances for their use?

POSITIVE - 15

NEGATIVE - 27

NEUTRAL – 12

Consultees reiterated points made to question 4 regarding the difficulties in establishing a cover crop within the timescales specified in the proposal and the scope for soil degradation, run-off and increased leaching where ground conditions are not suitable. Weed and pest issues as well as additional costs were also raised as potential issues. One response suggested the costs of establishing a cover crop could be much higher than anticipated and the use of cheap seed was not a realistic option in practice.

One response proposed that it is unnecessary to require the cultivation of stubbles and the sowing of cover crops, except where high risk stubbles such as maize are established and on soils that are at particular risk of erosion. It was stated that land with winter stubbles leach fewer nitrates than land sown with cover crops and land sown with winter cereal crop as stubbles contain crop and weed seeds, a proportion of which germinate with the resulting

natural regeneration taking up nitrogen in the soil. Bare soil following ploughing remains bare as buried seeds are unable to germinate. The buried seeds are also unavailable for birds through winter.

Some responders believed that a rough surface (ploughed) field will give less run-off than a late/failed cover crop of insufficient growth. These responses indicated that the existing soil self assessment within cross compliance is necessary to prevent soil erosion and would be the most appropriate measure in these circumstances.

Some felt that there should be more qualifiers in terms of the type of cover crop which should be used, as some crops will be better at preventing soil erosion than others. It was also expressed that careful management of the crop is key to ensuring the crop is sown and destroyed at the right time for optimum nitrate uptake.

One consultee believed that the proposal to not include the rough cover option was an over-complication of the measure, compared to the cross compliance rules. The rough cover option was stated as necessary for those growing Pembrokeshire early potatoes as it was argued they produce a better crop if the land is ploughed early in the calendar year and left in a rough state until it is ready for planting in February. One stakeholder also considered the restrictions on fertiliser applications under the measures applied within Nitrate Vulnerable zones would jeopardise yield of Pembrokeshire earlies.

One responder identified the growing of potatoes and maize, as well as other crops, in unsuitable locations as a cause of agricultural pollution, particularly soil erosion. Maize featured heavily in a number of responses as one of the greatest concerns due to surface water run-off and soil loss, worsened by those growing in inappropriate areas, such as on sloping land. One respondent said they would like to see maize stubble removed as an option because maize stubbles do not give an adequate cover for the soil due to widely spaced stems which can lead to high soil and nitrate losses from overland flows. A number of respondents stated maize should not be planted in high risk areas and where it is planted further measures, such as under sowing and chisel ploughing, should be taken to reduce the risk runoff and soil erosion.

Consultees were concerned about the growing of arable crops on unsuitable land. It was highlighted that factors like topography, water pathways, existing levels of runoff and identified high risk areas should be assessed for their suitability for the planting of any arable crops to prevent an increased risk of nutrient run-off directly into a watercourse, combined with increased soil mobilisation and river sedimentation. It was stated this has a detrimental impact on the receiving watercourses as well as the loss of valuable soil resource and reduced natural buffering capacity of riverbank margins.

Overall, the opinions of those responding suggested greater flexibility was needed to ensure the establishment of cover crops would not lead to detrimental actions for the sake of meeting the requirement, while additional measures were needed to ensure arable crops are not grown in areas of high risk.

Question 5 - Are the suggested dates appropriate? If not, what dates would you suggest?

POSITIVE - 130

NEGATIVE - 41

NEUTRAL – 11

A high number of those who did not agree with the proposed dates commented that the importance of flexibility due to weather and soil conditions should be the primary concern and that farming to the calendar could be detrimental to the environment. It was noted that the time between harvesting and establishing the following crop is often critical in getting weed seeds, black grass and volunteers to chit, and to try to control slugs mechanically.

One consultee said that in their experience autumn ploughing is usually carried out when the soil is at its most suitable state, relatively dry, once any trash or secondary growth has been grazed, and the water table is low in the soil profile. The plough operator has a much larger window of opportunity and can time the operation to best suit the soil conditions. The view was expressed, with increased pressure on time to spring plough ploughing will be incentivised at inappropriate times, resulting in long term damage to soils by smearing and compaction, adding to the risk of erosion and run-off. It was also said that delayed ploughing will also increase the use of pesticides and specifically aphicides to kill aphids in the “green bridge” to prevent the transfer of barley yellow dwarf virus to spring barley crops.

One responder felt that compliance monitoring of the proposal would be difficult. Also that if the sowing of cover crops was delayed by autumn rains this would cause further problems but that if maize was phased out and more suitable crops grown, which can be harvested earlier or itself able to prevent run-off occurring, this would be beneficial.

Three consultees suggested the proposal should be adopted between 31st October and 1st March, while 6 suggested the proposed dates appear appropriate.

One responder said that while the dates are not appropriate, as soil conditions moisture content and temperature should be the guide not a date on the calendar, cross compliance rules should be implemented to avoid any breeches.

One consultee felt leaving cover crops in the ground until 1st March would be acceptable for most cropping systems but a later date would be likely to cause problems for some farmers and growers, as it will limit their cropping programme. It was reported it would be necessary to offer derogations for a limited number of early crops, such as carrots, where a grower may need to prepare seedbeds over February, ready for sowing in March. Derogations were also seen by this respondent as necessary for allelopathic cover crops as extra time, up to 6 weeks, will be needed following their destruction before the following crop can be sown.

Issues around oilseed rape were raised. It was reported that if an oilseed rape crop is harvested on July 28th, using the dates suggested in the proposal, 14 days plus 10 days, the field would have to be drilled by August 22nd, which would be the wrong time to drill wheat and be impractical for many other crops. Rather, it would be advantageous to harrow and roll the field to chit, reducing reliance on chemicals.

One response considered early spring ploughing to be an accepted practice and 1st February would be a more appropriate date for the retention of stubble fields. The period for preparing a seed bed and sowing are entirely dependant on the weather and whilst farmers may have the very best intention of carrying them out, there can be periods in which it is impossible to do so. Where these circumstances occur, evidence of the weather and crop ground condition should be sufficient to be able to demonstrate compliance.

One consultee thought that the current cross compliance rules combined with the Nitrate Directive rules in the Republic of Ireland to provide effective measures. If the proposed dates are used it was felt most ploughing would be carried out by contractors or full time employed labour, rather than farmers, because they will be busy planting crops. This would increase the spring workload peak for contractors when they are already busy applying slurry to land. It would also deny farmers the opportunity to know a field very well before planting it, rather than just arriving at a field and not knowing if there are any shallow or damp spots that would be seen when ploughing. Sensible ploughing in dry times through the winter months allows any frosts to work and weather the soil and kill the stubble, weeds and crop residue to make creating seed beds an easier task in the spring, reducing carbon emissions and pesticide use. Infiltration rates on winter ploughed stubbles will be higher than the stubbles so there will be less run off and less soil wash off compared to the harvested stubble. This consultee preferred no ploughing before 1 December and only before 1 March with a completed risk assessment.

One response suggested that their light loam soils should not be bare for more than two or three weeks between October and March.

Question 6 - What actions do you consider should be defined to show compliance with the cover crop requirement?

CURRENT RULES SUFFICIENT – 12

SUGGESTIONS GIVEN – 140

NO COMPLIANCE NEEDED – 2

The majority of respondents indicated Natural Resources Wales and Rural Inspectorate Wales (part of Welsh Government) should be responsible for monitoring compliance with the proposal.

A number of respondents provided methods of inspection including aerial surveillance and site visits. Methods of demonstrating compliance provided were field records, including evidence of sowing, the crop growing within the field and, where weather conditions are such that the crop cannot be grown, evidence of the situation either by diary note or photographs. Where necessary receipts could be kept to show purchase of seed/other and farms that use an agronomist and/or contractor can also ask them to keep a record. It was also pointed out that as long as the crop is successful in germinating it will be visible. A crop rotation plan showing intended proposals and actual outcomes was proposed by one respondent.

Some responses suggested a mechanism to be built in to the annual returns and existing reporting requirements process for grant schemes which enables farmers to evidence how they have complied with the crop cover requirement. For example, dates could be provided when the land has been prepared as a seedbed, when the cover crop is sown and when it is

subsequently harvested and details of exactly what has been planted. In addition, any maps of the farm holdings that show the land use in each field should also include the relevant cover crop information.

A number of consultees believed that no additional paperwork or administration should be imposed on producers. One argued that the word of the landowner should be good enough but as this is unlikely to be acceptable by the Welsh Government a similar booklet to those used for cross compliance should be sufficient.

Some responses went further and suggested the outcomes of the measure should also be monitored with landowners required to demonstrate that nitrate levels in arable fields are under control with a programme of soil sampling using independent laboratory analysis. A baseline of soil information for each field could be established with a rolling annual programme of sampling and analysis, working towards optimum soil quality for the specific field use.

Alternative quality assurance and partnership solutions were also suggested. A 'Water Friendly' kite mark/standard could be developed for use in supermarkets on farm products that indicates the production method meet the required standards and do not pollute local watercourses. It was also proposed landowners could be encouraged to aim for land management practices which are in line with Organic 'Soil Association' standards.

Encouraging ownership and responsibility was suggested through a NRW and Dwr Cymru initiative which supports Water Ranger volunteers to help monitor catchments, for example such as the Citizen Crane Project in Crane Valley, West London. Volunteers could be offered deductions on their water bill for taking part. It was also proposed the RSPB Bird Survey Volunteer and Farmer Alliance could be reintroduced, which brings together volunteer bird monitors and landowners to survey fields at dawn on 4 occasions during the Spring/Summer to show that plans to increase biodiversity in cover-crop fields and set aside are working.

Data sharing was viewed as a method of establishing joint ownership and responsibility, with the suggestion that NRW water monitoring results and the Riverfly Partnership co-ordinated Anglers' Riverfly Monitoring Initiative's volunteer kick sample results should be more widely publicised and made accessible to all landowners in a river catchment.

One respondent argued there must be adequate resources to ensure effective monitoring of compliance and delivery. Another stated if the measures are to be effective, Government must adequately fund and resource NRW to hold regular advisory meetings and carry out consistent farm advice, as well as short notice and scientific monitoring visits.

Question 7 - Do you think the existing rules on the storage of solid livestock manures sufficient to reduce the risk of pollution?

POSITIVE - 79

NEGATIVE - 117

NEUTRAL – 3

The Majority of the responses received indicated the rules will reduce the amount of pollution but will not prevent it because uncovered heaps of manure will be subject to leaching, resulting in the loss of pollutants and nutrients to the soil. In waterlogged conditions in the autumn-spring period there will inevitably be transport of nutrients and pollutants in soil water leading to contamination of surface waters from seepage into land drains and drainage ditches and subsequently to streams and rivers.

One responder felt that solid livestock manure should be the only manure allowed on farms. They argued that slurry needs to be phased out as whilst it is considered to be a nutrient and does grow crops well, it also contains a large amount of chemicals, causes storage problems and as it is predominantly a liquid notorious for running off fields and entering every ditch, stream and watercourse, causing devastating effects to the ecology of the rivers and waterways.

Another consultee made a comparison to the requirements of other industries, stating that if other types of businesses operated similar practices they would be closed down, suggesting the rules should be more prescriptive.

An example of a pollution issue was provided by a consultee who witnessed a pollution incident in 2015. The issue was related to a large (many tons of material) manure heap, on flat ground, close to the entrance of a field, towards the top of a minor hill. The consultee reported that leachate was running from the heap out through the field entrance and into the roadway drainage, which was at a considerable gradient. The dark brown leachate, in quantity, was running into the roadway ditch and across the roadway surface, downhill (a total fall of about 10 meters) for some 600 meters and then into the River Syfynwy, Pembrokeshire, at a ford. It was highlighted that the river is a Site of Special Scientific Interest, in a Special Area of Conservation. The pollution issue was reported to the authorities.

Other insufficiencies were reported by consultees. One of which is rules for the siting of manure heaps should take account of the propensity of any liquid effluent to take advantage of any local dry ditch, field track, roadway drain, subsoil drainage or any other convenient pathway away from the heap to the prejudice of any watercourse. Lack of enforcement and a lack of incentives, or reasons for farmers to update their slurry storage systems were also raised. It was felt that farmers need to know that their systems will be investigated as a way of demonstrating compliance for agricultural payments. It was pointed out that a farmer may have received significant payments for over 30 years, but may have invested little in slurry handling systems.

A stakeholder made the point that regulation needs to be appropriate and followed to be effective. It was reported that long term field heaps of manure, including poultry manure,

uncovered, and with the potential for run off into watercourses are a not infrequent in Radnorshire. Voluntary codes of good practice are not consistently being followed and so it was suggested that the regulatory force of the NVZ Action Programme is required to prevent pollution.

It was noted the existing rules providing a maximum storage period for field heaps in Wales are not as stringent as in other member states. In Northern Ireland the maximum in field storage time is 120 days, and field storage of poultry manure is subject to authorisation by the Northern Ireland Environment Agency. There is also a prohibition of field storage of any manure within 250m of a borehole used for public water supply or on land which is waterlogged, flooded or likely to flood.

One stakeholder believed there should be a greater distance between storage area and watercourse. The reason provided was leaching of manure pollutants is probably underestimated and would be a continual source of pollution even in relative drought conditions. Low river levels combined with continual leaching via groundwater could lead to higher concentration of pollutants than run off experienced during high rainfall and greater dilution.

An example of the amount of manure on a poultry farm was provided to demonstrate the potential for nitrate pollution from a recent planning application. It was reported that the ranging area will receive approximately 4741 kg/N/ha/yr. This compares with a normally permitted application rate, which should not exceed 250 Kg Total N /ha/yr.

Thirteen responses were received proposing the implementation of a small scale capital grant would eliminate the need for temporary manure stores, where farmers are able to fund covered manure stores.

It was suggested by one consultee well-rotted farm yard manure will have used up virtually all its nitrogen content in the rotting down process, any excess would be contained within the bedding matrix. Another provided that any reduction in the present 12 month limit for temporary field heaps could compromise biosecurity. TB Bacillus can survive in manures for up to 12 months, during this time the recommendation is manure from a TB infected herd should not be spread on grassland used for cattle grazing or conservation.

Some responders felt that cross compliance and existing regulations are sufficient and that there is no evidence to show existing rules are having a detrimental effect on rivers

One stakeholder raised the concern the rules on manure heaps were revised in 2013 and are already lengthy and onerous. For this reason and as further research undertaken on field heaps were not available at the time of consultation, any additional changes were opposed. Regarding the proposal to reduce the maximum length of time a field heap may be retained on a farm it was felt that the current rules are not unclear regarding the temporary nature of field heaps and it was felt any change must be proportionate to the benefits gained and should occur only where there is real evidence that an existing regulation is not fit for purpose.

Furthermore, comments were received that organic farmers must leave their farmyard manure to compost for up to 12 months to ensure that it has heated sufficiently to

breakdown components of the manure such as seeds. In addition, potato growers require well composted, not fresh, farmyard manure for efficient production.

One consultee responded that the main cause of pollution is not solid livestock manure, but the non-cooling of industrial water and litter/fly-tipping and asked why this was not being tackled. Another felt that solid manure should be the only type of manure on farms, and slurry should be phased out quickly, and to be made an illegal substance by law, as it contains highly dangerous toxic chemicals and runs off fields polluting rivers and waterways with devastating effects. It was highlighted that the gasses contained in Slurry have killed 10 people, including children, in the UK and Ireland in the last 10 yrs.

It was felt by a number of those responding that the 12 month storage period indicates on field storage of farmyard manure is a temporary measure and any adjustment of this timeframe may create confusion and additional burdens for landowners. The 12 consecutive month limit on single position of field heaps was said to be equal to the standards set in England's Cross Compliance Handbook for 2015 and therefore is equal to relevant standards so should not be changed.

Conversely, it was also reported that long term storage of manure heaps in field should not be encouraged as good practice, rather it should only be a temporary storage option in the spring and summer months as nitrate loss to leaching will be high with heavy rainfall.

While one stakeholder felt that the existing rules on field heaps are generally sufficient and workable, heaps being located in the same position as another heap within two years should not be prevented. This provision was considered to hinder the appropriate storage of manure, as often one position is more suitable for storage, preventing pollution, than any other area of the farm which may pose higher risks. It was though there was justification for this rule to be reviewed.

Question 8 – If not, what additional rules do you think should be established?

SUFFICIENT - 11

SUGGESTIONS – 149

The consultees claiming the existing rules are sufficient also argued that there is currently no evidence to indicate that the existing rules are inadequate. It was also considered that the current rules make it clear enough that field heaps are considered to be a temporary measure and that the 12 month period is appropriate.

There was confirmation that temporary field heaps of solid manure are an important part of farming practice in Wales. One stakeholder was disappointed that the consultation was issued prior to the completion of field trials and viewed that there are already sufficient rules on the storage of solid livestock manures to minimise the risk of pollution.

It was highlighted solid livestock manures are not high in nitrogen and substantiated evidence of the risk to water posed by temporary field heaps, which would justify making changes, is not available. It was stated only a small amount of the total-N in manure heaps is lost through leaching. Requiring covers on heaps would have an adverse effect on losses through enhanced ammonia emissions. The N-concentration of leachates decreases with

increasing storage time and although precipitation on uncovered heaps may increase quantity of leachate, it would also dilute leachate resulting in even lower concentrations (Dewes, 1995).

Instead of additional rules it was suggested the focus should be educating farmers, such as on the siting of field heaps and understanding risks and reasoning behind existing requirements, rather than introducing further complexity.

It was also highlighted costs for concrete pads with leachate collection have been estimated at £256 million for the whole of England and Wales with costs around £30,000 per farm in the Diffuse Pollution Manual. The additional costs of covering manure stores were raised. It was suggested additional requirements along these lines do not, therefore, represent a cost effective action and would not be in line with the Welsh Government aspiration of supporting an economically viable farming industry.

Concerns were raised additional rules would lead to pollution swapping such as the requirement for covers. It was considered unclear whether leachate would be classed as slurry or dirty water and therefore how it would be managed. If a new requirement was brought in which required heaps to be moved more regularly than every 12 months, there was a concern that some farms would not have enough suitable sites available. There would also be potential for increased soil structure damage due to increased machinery movements.

Numerous consultees commented that the risk of pollution can be reduced through additional controls specifying a maximum size of manure heaps and a requirement to cover them with an impermeable material. Research has demonstrated covering manure heaps has also been shown to reduce greenhouse gas emissions.

Thirteen responders suggested reiterated potential implementation of a small scale capital grant scheme so that farmers are able to fund covered manure stores would eliminate the need for temporary manure stores. Two responders thought the Welsh Government should investigate reed beds as a filtration system for slurry/dirty water and devise operational systems for farms.

Some consultees thought the distance to spring, well or borehole should be reconsidered with 100 metres and 75 metres from a watercourse being suggested by some as improvements to the existing standards. Others argued that all manure should be held in properly constructed storage areas that are preferably covered and incorporate a system of intercepting and containing any leachate.

Despite the inclusion of rules relating to the distances field heaps must be placed away from watercourses, springs, land drains etc. It was felt by some responders that there are still potential issues with the location of manure heaps due to farmers being unaware of connectivity. It was suggested mapping of land to identify high risk fields and pollution pathways would help to eliminate the risk of manure heaps being inappropriately sited within fields.

General Binding Rules were also proposed to incentivise the better management of slurry, to better control diffuse pollution from agriculture generally.

Question 9 - Should there be a closed period for farmyard manure?

POSITIVE - 59

NEGATIVE - 67

DEPENDS – 21

Consultees responding agreed as significant nitrate leaching can occur under autumn/winter conditions closed periods should apply to farmyard manure. It was also suggested it is common sense rules are put in place to ensure manure can only be spread after so many days of dry weather. One stakeholder suggested a closed period between 15 October and 1 March in NVZs. It was also suggested to reduce the potential for confusion a blanket closed season for all manures on all soil types should be introduced.

Three responders identified any closed period would impact on their ability to use valuable nutrients from farmyard manure, which is an important part of farm practice. On these farms, farmyard manure is used as a fertiliser and spread on land when conditions are suitable and on arable fields after harvest and before ploughing.

One stakeholder argued the consultation states that research shows farmyard manure presents a risk of nitrate leaching, particularly when spread in the autumn, but does not demonstrate the degree to which this issue negatively impacts on the nitrate levels of polluted waters. Therefore, they opposed the proposal.

Several members of one organisation reported the use of slurry technologies, such as slurry presses, could aid in the production of more solid manure and this could aid mitigation of nitrate pollution. More research in this area would be welcomed in order to identify the practises which could aid on-farm flexibility when complying with the regulation. Mechanisms which reduce nitrates run-off should allow for derogation when complying with the NVZ Action Programme measures and it was deemed essential research on NVZ areas works in both directions.

It was highlighted there are concerns slurry contractors may be forced to reduce staffing levels during closed periods and this may mean that demand for such services during favourable weather conditions cannot be met.

It was proposed by one consultee manure can be spread on all but the wettest of days because of its denser nature, while another suggested a landowner would have a greater understanding of their land, knowledge which would support the processes taken in order to prevent damage to soils and loss of nutrients. Therefore, restricting landowners by enforcing a time frame would result in a negative impact on pollution with higher likelihood risks would be taken either side of a closed period, even though the weather conditions may not be idyllic.

A high number of those against a closed period for farmyard manure stated farming by the calendar rather than according to weather and ground conditions would be detrimental to the objective of increasing the efficient use of resources. One responder discussed a potential consequence of restricting the application of farmyard manure could be an

increase in reliance on artificial fertiliser, the production of which is a high energy, polluting process.

One consultee argued it is vital that farmyard manure is spread on the ground when conditions are dry enough throughout the winter for the ground and the crop to benefit. It was stated it is impossible to spread farmyard manure on grassland after 1st March as stock will not wish to graze the grass as it would not be palatable. Also farmyard manure cannot be spread on silage ground after 1 March as this increases the risk of diseases such as salmonella considerably and it would be detrimental to the quality of any silage made.

The experience of one farmer was provided as an example of why a closed period should not be introduced. It was reported this year the weather pattern in October and November were perfect for applications, whereas a closed period ending on 31 March would have resulted in more damage to the land due to weather conditions at that time. It was considered the capital expenditure involved in additional storage would seriously damage the business and could lead to an exit from livestock production.

Question 10 - If so, have we identified the correct circumstances in which a closed period should apply?

POSITIVE - 6

NEGATIVE - 156

NEUTRAL – 1

The proposed restrictions only apply to arable crops on sandy soils which were identified by responders as quite a restricted area in Wales. The claim in the consultation that the risk of nitrate leaching is much lower on grassland, where the crop uptake is sufficient to reduce the risk to a minimum was questioned. Several responders argued that significant uptake in low temperatures in winter when the grass is dormant would not be expected. Different rules for various types of organic manure and soil type was considered an over complication and it was proposed the closed season should apply to all organic manures and soil types.

One stakeholder made the point that farmers should be encouraged to feed their crops and soil biology little and often, rather than in large intermittent doses which is what the closed period encourages. It was also felt by many of those responding that the use of closed periods would be largely impractical and draconian. Reference was made to the impact of climate change on seasonal variations in weather and commented that because of this a more pragmatic approach was needed. The same consultee highlighted that the closed period may be the only available time period for the spreading of farmyard manure on an autumn or winter sown crop being grown on sandy soil tillage land. Farmyard manure would not be spread once the crop is planted and for this reason the proposal was rejected. While the proposal was rejected, the introduction of an exemption where a crop is sown which would take up the applied nutrients was considered necessary if the proposal were to be adopted.

As per question 9, experience of weather conditions was provided as an example of why the measure would be impractical. It was stated that the autumn of 2016 was a perfect example of why this measure of rigid dates is inappropriate. The autumn was warm with low rainfall

resulting in high soil temperatures, excellent grass and autumn sown crop growth with high nutrient uptake from all organic manures well into late October and November.

A response was also provided from a poultry business. The suggested closed period for the spreading of farmyard manure, or hen manure in this case, of October to April was considered to be disastrous for this farm for two reasons. Poultry manure is spread as and when weather and ground conditions allow. This autumn the last two weeks of September was wet and ground conditions would not have been suitable. However, October was a very good month for autumn cultivations, drilling, etc. and ground conditions were excellent for spreading muck on both grassland and arable ground to be drilled. A considerable amount of poultry manure is sold off-farm and this is quite often ploughed in for spring corn before drilling. In a good early spring the date of the 1st of April would be too late for use in this way.

One stakeholder requested an explanation of the reasons for the discrepancy between the closed period suggested, 1 August and 30 September, and that in force in Northern Ireland, 31 October to 31 January.

The amount of legislation required to stop a very small amount of manure spreading was believed to be disproportionate. In Wales, it was argued, there will not be very much land that is sandy and in arable production. The use of farmyard manure is an important source of both organic material, to improve soil structure, and a source of fertiliser for the ensuing crop

Question 11 – Should a closed period apply to all other organic fertilisers?

POSITIVE - 18

NEGATIVE – 165

The complexity of the regulations regarding closed periods was raised. The preceding questions all apply to farmyard manure. There are already closed periods under the existing regulations and these periods refer both to organic and inorganic manure. The current closed period for inorganic fertiliser on grassland (15th September to 15th January) are reasonable except that in the case of winter sown crops on arable land a degree of fertilizer for establishment is usually made and the sowing could well be after the 1st September. One solution offered would be to put both commencement dates of the periods to the 30th September in any one year.

As regards organic fertilizer and in particularly nitrogen, the closed periods are grassland (15th October to 31st January), arable land (1st October to 31st January) on heavy soils. It was suggested there are strong arguments to amend this in Pembrokeshire because of the local climate to 15th November to 31st January for grassland and 1st November to 31st January on arable land. There are also certain other restrictions for sandy or shallow soils.

Pembrokeshire was viewed to be in a particularly advantageous situation, as at various periods in the autumn and winter, ground and weather conditions allow for spreading of organic fertilisers particularly on pasture land. It was argued that the whole question of closed periods in the context of a major Pembrokeshire area within the Nitrate Vulnerable

Zone needs very careful consideration as well as the ability to allow for exceptional weather conditions, for which 2016 is a very good example.

One stakeholder reported the consultation was unclear whether the rules are tackling a real or theoretical risk. The point was made that controlling a theoretical risk by the introduction of fixed dates is not an effective approach because the real risk to waters relies on actual field conditions. Should actual conditions vary from the average ones used in designing the rules, there could actually be more risk of leaching occurring in the days and weeks following the end of the closed period. The alternative of allowing farmers to make decisions based on weather and ground conditions was preferred to closed periods.

In a response it was stated that voluntary Farm Assured Schemes now cover over 75% of the land area of Wales and these include inspection for compliance at 12-18 month intervals with clear requirements on manure, nutrient and pesticide management and the Farming Connect Service. The response detailed the disappointment that under the current Farming Connect programme access to technical advice has been limited to farmers with business planning requirements in place and it is believed this has presented a significant barrier to uptake of subsidised nutrient management planning. It was recommended that Welsh Government remove the business planning requirement without delay.

The same stakeholder was concerned about the unintended negative consequences of introducing seemingly arbitrary rules which do not promote an understanding of the best use of manures. The example was provided, when farmyard manures are applied too late it may not be able to meet the crop requirements in time, especially when the manure is derived from housing systems with abundant use of bedding material rich in carbon (e.g. cereal straw), which could have a detrimental impact on crop yields and result in leaching losses, just at a different time in the year. Introducing a closed period for farmyard manure would impact upon farmers' ability to apply organic matter to those soils where it is really needed. A potential unintended consequence of encouraging spreading at a higher rate after the end of the closed period was also detailed and an explanation of the scientific basis for the dates was requested.

In relation the specific question, it was understood that the reference to all other organic fertilisers means any organic material that is not manure which is used as a fertiliser. A responder objected to the principle of closed periods due to reduced flexibility to adapt to site conditions. It was felt that any extension of the rules would not lead to greater business or environmental resilience. It was argued that providing flexibility reduces the risk of land spreading in adverse weather or ground conditions and, thus, reduces the risk of environmental pollution.

One consultee responded that the closed period should apply to all organic fertilisers but only where more than 30% of the total nitrogen content is available to the crop at the time of spreading.

Question 12 - Do you agree with increases to the nitrogen efficiency standard values used in Nmax or should they remain the same?

POSITIVE - 133

NEGATIVE - 59

NEUTRAL/UNSURE – 11

A number of consultees opposed changes to the efficiency values, with the view that they should remain the same because of the amount of variation in the way that different farms apply slurry. Further to this, it was commented by one stakeholder that a one size fits all approach was seen as too generalised and not related to the real world.

In one responder's experience, the practical use of the manure co-efficients as part of the Action Programme measures is poorly understood, with little emphasis placed on implementation. They suggested the co-efficients should not be amended at this stage, rather greater levels of advice on the current requirements should be provided to land managers. In addition, more emphasis should be placed on promoting the measurement of the nutrient content of slurry and other organic fertilisers, which can be done easily, accurately and economically whilst undertaking routine spreading operations.

A number of respondents did not feel that any comparison of the values used in Wales with other EU member states is unjustified as some member states use higher values, others lower figures and eleven member states do not take manure-N efficiency into account in their Nitrogen Action Programmes at all.

Some respondents felt that the proposals had not been outlined in sufficient detail and insufficient evidence was provided to justify any change. It was also suggested that any change will lead to extra confusion and unintentional non-compliance. There was some concern cross compliance penalties could be applied in these circumstances and that increased values could lead to a reduction of stock on land, which could further affect the profitability and viability of farms.

The majority of respondents agreed that changes would be justified if they are based on sound scientific evidence. Reasons for agreeing included the potential for a reduction in the amount of slurry spread on any given hectare. The importance of providing manure nitrogen efficiency values which reflect the most up-to-date evidence was raised as they strongly influence the value placed on livestock manures in terms of the amounts of nitrogen available to crops being attributed to them within fertilisation and nutrient management planning.

One consultee raised the importance of the need to make better use of nutrients and which should be linked to the outcomes of research undertaken in Wales and the UK. Another responder commented that greater emphasis on the importance of organic fertiliser should be established in the Action Programme in recognition that the nitrogen from organic manure is released at a sustained and slower release rate compared to manufactured fertilisers and that the nitrogen content of poultry manure is particularly low in present figures, which could contribute to N pollution where poorly applied.

One consultee believed that the values should be at least average when compared with other European countries and at least the same as in England. However, it was also stated that standards in Wales should be high to ensure a clean environment and should be comparable with leading mountainous countries in Europe such as Switzerland, Austria, Bavaria and Norway. It was argued Wales should not aim for the lowest environmental standards.

Question 13 - What concerns or benefits do you think increasing the values may raise?

CONFUSION - 23

BENEFICIAL - 126

NO BENEFIT - 11

OTHER – 16

The majority of responses perceived the benefits of raising the co-efficiency values to be a reduction in the amount of organic fertiliser to be applied which would reduce the risk of nutrient losses. Increasing the values was seen as promoting best practice and providing further encouragement for farmers to get their slurries analysed to allow a more accurate calculation of nitrogen inputs.

A number of responders had the view raising the values will allow a greater nitrogen contribution to be attributed to organic manures when looking to meet crop demands and this would enable more efficient re-use of on farm resources. This in turn would reduce and offset the need for buying in and applying chemical fertilisers. The need for less manufactured nitrogen fertilisers would also contribute to reducing the risk of over application to land and the resulting run-off and nutrient losses that subsequently occurs. Another consultee felt that as reducing reliance on artificial fertilisers would be the greatest benefit higher values should result in a greater appreciation of the true value of manures and slurries, reducing carbon emissions and improving soil health. One consultee referred to the need to promote efficient use of manure nutrients and for soil testing technologies to be promoted.

Concerns were raised by those objecting to any increase in the nitrogen efficiency values about the confusion which may be caused, which could lead to poor nutrient management. A number of responders felt it would be more productive to enforce the current rules to ensure compliance before the bar is raised to higher levels, particularly as this area of the regulations are complex. Others also raised the inadequate enforcement of the regulations as an issue which needs to be resolved. The advice given in fertiliser manual RB209 and the availability of advice from FACTS qualified agronomists was referred to. It was argued the approach should be science led, using soil mineral nitrogen testing to establish the optimum requirements of nitrogen for crops. Related to this, one responder reported not all slurry will contain the same nitrogen levels using the example that highly fed dairy cow slurry would be higher in nitrogen than suckler cow slurry and would be dependant on how much water is in it.

One stakeholder replied that any confusion caused could be removed by adequate guidance and communication. It was also suggested that any increase in the efficiency values might lead to an optimistic assumption on Nitrogen take up, leading to unused Nitrogen contaminating soil/ground water.

A number of consultees also raised storage costs as a particular difficulty. Raising the standard values would decrease the quantity of slurry/manure that can be applied to the land. This could increase the storage capacity required of slurry storage systems to hold slurry which would previously have been applied to land. Provision of this storage would come at a high cost to both individual businesses and the industry as a whole. It may force businesses to make the decision to stop keeping cattle, which would be of greater detriment to the rural economy and Welsh agriculture. One stakeholder was concerned that if the efficiency values are different in England and Wales a high level of confusion would occur for businesses with land in cross-border NVZs. Further to this, one consultee felt that altering the values will cause reduction in stocking rates, leading to a reduction in output.

One response was critical that the lack of information and the absence of Regulatory Impact Assessment in the consultation process meant there were no discernable benefits.

Question 14 – If you think the values should be increased, what values should be used?

NO CHANGE - 20

BASE ON SCIENTIFIC EVIDENCE - 121

DIFFERENT FOR EACH FARM - 3

No specific values were suggested by those responding to this question. The majority of responses were in agreement the figures should be based upon the best evidence available, while twenty thought there should be no change. Two responders had the view that there was insufficient evidence to establish whether an increase is needed and, if so, what values should be used. It was suggested that stakeholders needed further information to be able to respond fully on this issue.

A requirement for individual farms to analyse manure to determine the amount of readily available nitrogen was suggested as the most effective approach by three consultees. One responder thought a figure much closer to the total N content of the manure would be more appropriate while another suggested values should be comparable to those used in countries with successful alpine tourism industries.

Question 15 - Do you think that the manure values of Schedules 1 and 3 should be updated, where there is sufficient evidence to support that change?

NO CHANGE - 44

YES IF SCIENTIFIC EVIDENCE SUPPORTS – 113

DID NOT UNDERSTAND THE QUESTION - 6

The majority of respondents agreed with changes to manure values where supported by scientific evidence. Those opposing any change in the values argued that confusion and difficulties with record keeping could be caused, leading to unintended non-compliance. Better guidance and improved awareness of guidance was seen as essential to improve nutrient management, including the promotion of an improved Code of Good Agricultural Practice.

Values for cattle and pig slurries were last updated in 2013. One responder commented that making further changes four years later could cause yet more confusion. It was added values in the regulations are only a best estimate based on a small number of studies and the actual amount that becomes available and is taken up by crops will vary considerably between farms.

The use of standard values was believed to give policymakers undue confidence in the amount of control the NVZ Action Programme provides. It was suggested that a range could be used, incorporating the existing and proposed new values with a short explanatory note to explain in which conditions the higher or lower values could be used but all values should be accepted as correct for at least the next four years of the new Action Programme. The same responder also highlighted there is a benefit of farmers being able to use their own measured values rather than relying on standard values.

Those disagreeing with the proposal were concerned about a lack of evidence for change.

Question 16 – Do you agree that the current rules on slopes sufficiently address the risks of pollution?

POSITIVE - 76

NEGATIVE - 123

Those responding positively to the question stated that the existing rules are sufficient to minimise the risk. Two responders felt that the importance of the timing of applications is more important on sloping ground and additional guidance on best practice would be more useful than additional rules. Another suggested the rules were sufficient but compliance may be an issue. One consultee was pleased the importance of the variable weather conditions and its impact on the ground conditions was recognised and believed this principle should be more widely adopted within the Action Programme.

Those responding negatively believe there is a need for additional rules on slopes to prevent water pollution. Some were concerned that the risks presented by spreading slurry on steep slopes, particularly in areas with heavy rainfall were too great and additional rules should be introduced to address these issues. Some respondents felt a wider variety of factors should be considered when determining the effect of slopes. One responder thought that no applications should be made on slopes unless it is spread on grass, as run-off would be reduced this way.

Question 17 - If not, why not and what rules do you think should be implemented to address the risk?

CURRENT RULES SUFFICIENT - 12

IDEAS PUT FORWARD - 124

OTHER – 1

Respondents felt that other factors need to be taken account of in determining risk, including ground cover, proximity to surface water, weather conditions, soil type and condition, connectivity and the presence of land drains. It was also commented that spreading of organic manure under waterlogged soil conditions should not be permitted.

Two consultees proposed that much of the risk will be site specific and could be analysed using Sci Map (University of Durham) to support or reject the application or storage of manure (www.scimap.org.uk/), while another suggested that clarifying the wording could prevent some mistakes being made.

Twelve respondents reiterated their belief that the current rules are sufficient. One consultee provided the view that due to the plethora of burdensome regulation the removal of superfluous requirements should be given equal precedent to any consideration of additional measures. This would ensure that all Action Programme requirements are fit for purpose and in line with the Working Smarter Review.

Two respondents felt that phasing out slurry and moving to straw bedded housing to create Farmyard manure, a solid product, would reduce pollution levels. Some consultees were concerned about any requirement which would require the farmer to measure slope gradients.

Question 18 - Do you agree with the proposal to clarify the wording of the regulations?

POSITIVE - 146

NEGATIVE - 22

NEUTRAL - 8

OTHER – 4

Many of those who agreed with a change in the regulations to provide greater clarification on the requirement not to spread on frozen ground suggested clarity should be given to make it clearer the requirement includes all types of fertiliser. It was stated that there may be an element of personal judgement as to whether or not the soil has been frozen for more than 12 hours in the previous 24 hours. The importance of providing sufficient guidance was also raised by one consultee. Another stakeholder supported changes to improve understanding of the regulations but was concerned that landowners may have difficulties in proving compliance with the suggested change in wording.

The alternative wording of “nitrogen fertiliser must not be spread on soil that is snow-covered or frozen at or below the surface” was suggested by one responder as they

believed the proposed wording to be insufficient. One stakeholder agreed with clarification to the wording in the regulations but commented that any regulations should be a last resort.

A response was provided which questioned whether the words “at or below the surface” will act to provide clarity. It was felt this would not provide the certainty farmers need to assess whether they may apply manure. If this definition were adopted it was proposed guidance would be needed to help farmers understand at what depths they should assess the soil before proceeding with a manure application.

One consultee stated that there are circumstances in exceptionally wet winters when the only possible time a slurry store is able to be emptied is during a frost. There should therefore be scope within the regulations to give a general derogation to this rule for exceptional circumstances.

Several responders objected to the change because it was felt it would increase red tape by creating the need for additional record keeping and additional rules. However, one consultee clarified that if the change were to simplify the regulations and reduced red tape they would support the change.

One person objecting to the proposal asked how far below the surface would the regulations wording apply and how land managers should identify if the ground is frozen below the surface. They also highlighted that farmers are familiar with the current wording.

One response highlighted that no information was provided on how farmers would be expected to demonstrate compliance with the change. The same response considered that the NVZ Action Programme is already a highly complex and bureaucratic regulation, incurring high numbers of breaches relative to the area of NVZ in other parts of the UK. It was stated that changes to the NVZ Action Programme should be taken forward on the principle of reducing and simplifying the burden of reporting on farmers not increasing it. It was also requested that the Welsh Government provide evidence of the risks associated with spreading on frozen ground that is flat.

One responder made the point that spreading on frozen ground has benefits in terms of avoiding soil compaction and that this should be considered as a trade-off.

Question 19 – Do you agree with the adoption of a whole farm limit?

POSITIVE - 146

NEGATIVE - 52

OTHER - 6

Ten responders did not agree with the proposal, while 13 did not believe their area should be designated as a NVZ at all, stating that the farms in the area adhere to the Code of Good Agricultural Practice anyway.

Two consultees highlighted where farms crossed the NVZ boundary they are regulated over their whole area, the likely consequence would be increased slurry movement to other areas outside the NVZ boundary. The consultees made the point that this is particularly important on areas to the west of the Western Cleddau, where the streams leading to the

coast could carry polluted water to their outfall and possibly beach and bathing areas. On balance it was felt that farms split by the NVZ boundary should have no restrictions on the area outside the boundary, thus they did not agree to a whole farm limit. Another 4 responses objected to the proposal because slurry would be moved out of the NVZs to the detriment of the environment in other areas, with possible risk of traffic congestion, and damage to the roads by use of oversized vehicles.

A number of responses opposing the proposal raised the issue that limits on nitrogen applications are not applicable as the grass growing season is longer in West Wales and more nitrogen is utilised than in colder European climates.

Some stakeholders felt it would be unfair for farms with only small areas of the holding within the NVZ to have a whole farm limit.

One consultee suggested the limit should make reference to the demand from the crops being grown rather than an annual limit of 250kg N regardless of the cropping. They provided the example, of forage rye, which if drilled in Autumn, harvested in April and then maize drilled in the same fields in late April, harvested in Sept/Oct and then drilled with wheat that Autumn, the 250kg limit would be too restrictive. The crop demands for N and organic matter is far higher than 250kg when multi cropping.

It was felt by one consultee that land covered by an NVZ should not have to adopt a whole farm limit unless there is evidence excessive amounts of nitrogen have been applied outside the NVZ. They argued imposing a whole farm limit would increase the cost burden faced by those farms and risk further confusion where farms vary their land area each year. The example was provided that some farms take land on short term tenancies or grazing arrangements, the area of which may vary from year to year.

Most of those agreeing with the proposal simply stated their agreement. One responder offered that there is a need to deal effectively with farms or holdings that have land both inside and outside NVZ areas, in particular to determine a whole farm limit for the purposes of Regulation 12. However, they also considered that there were negative consequences.

For the purpose of calculating the slurry storage requirement to comply with Regulation 35, it was stated that the proposal could disadvantage those farms which have a significant proportion of land outside NVZ areas. It also appears to further complicate slurry storage calculations. Instead, it was suggested there should be rationalisation of the requirements of the NVZ and slurry storage (SSAFO) regulations, where as well as using different periods for required storage, differing rainfall calculations are currently used. Whilst these differences mainly provide for relatively small differences in storage requirements overall, the differences in calculation methods do cause confusion.

Furthermore, before committing to amend the SSAFO requirements in line with NVZ requirements, as proposed, a potential problem was raised. SSAFO currently includes a requirement to deal with likely rainfall, interpreted as a five-year return period, whereas NVZ implementation uses average rainfall. The emphasis on NVZ implementation is that as Regulation 35 (3) refers to "...any rainfall that enters the vessel...". Therefore, the use of average rainfall does not appear appropriate, especially given the intention stated in the consultation to move to more sustainable practices.

One responder highlighted that discrete NVZ designations are likely to exclude areas where significant issues are present and therefore would not adequately tackle the extensive problems that are arising from agricultural pollution. They went on to say that most of the severely impacted areas from farm pollution lie outside the areas which would be designated. This problem is exacerbated by some farms spreading excessive amounts of livestock manure on the land outside of the NVZ in order to remain compliant with the 170kg/N/ha limit, which applies to the land within the NVZ boundary. As identified in the consultation document, this increases the risk of pollution outside of the NVZ's and causes breaches in the Code of Good Agricultural Practice when the kg/N/ha limits are exceeded.

Question 20 – If you do, have we identified the correct method of establishing the limit?

POSITIVE - 19

NEGATIVE - 22

NEUTRAL - 3

22 of those responding to this question reiterated their objection to the main proposal. One explained the impact upon their business, a 250 acre holding operating a grass based dairy farming system with 180 milking cows and a similar number of followers. Two calving blocks are operated in spring and autumn and the ability to grow grass all-year round is seen as critical to the business.

It was explained that closed periods for spreading slurry and fertiliser would be a huge detriment to the business as slurry is spread usually the autumn and early winter, depending on weather and ground conditions. The impacts of the NVZ rules on growing grass would limit the farm's ability to produce milk.

Furthermore, the current slurry storage on the farm is sufficient for two months, therefore the requirements for 5 months of slurry storage would require a significant capital investment at a time when milk price has been very low for the last two years. Difficulties with borrowing in the present climate and planning and NRW advice services were also raised as factors.

Those supporting the proposal and the one against it, believed the calculation method proposed is practical. One responder provided that while they could see the benefits of adopting the NVZ storage limit across a cross boundary holding it was also recognised some farmers may prefer to accept the approach where they already meet the requirements. They therefore supported the Welsh Governments view not to make the NVZ farm storage requirement mandatory across the whole farm.

Two consultees identified a whole territory approach would negate the need to establish a whole farm limit. Another said whatever was adopted needed to be understood or the objective would not be met.

Question 21 – If you do not agree, do you think an alternative approach should be taken?

POSITIVE - 44

NEGATIVE - 5

NEUTRAL – 2

Almost all consultees responding to this question believed an alternative approach should be taken with just five opposing this view. Thirteen consultees believed that the Code of Good Agricultural Practice is sufficient as it allows for the variation in farming environments. Many of the 44 consultees preferring an alternative approach argued an evidence based assessment should be made taking into account the length of the growing season/ground conditions and the take up of nitrogen, stating that each farm has a different farming practice and different soil type so a prescriptive approach is required for each individual farm. One response suggested the AHDB Nutrient Management Guide (RB209) and the Code of Good Agricultural Practice should form the appropriate standards.

One responder offered the alternative should be as per certified organic holdings where a farm limit of 170 kg/N/ha per farm, with a limit of 240 kg/N/ha max per field, or if a crop has a proven higher demand (tomatoes, wheat etc.) this could be exceeded. This has a low risk if annually inspected and nutrient balances are taken to prove increased leaching has not occurred, despite much higher inputs in a particular field or greenhouse. It was also suggested that regulatory bodies should work with individual farmers to take into account specific weather soil and climatic conditions.

Question 22 – Do you agree with the proportional approach described for calculating slurry storage?

POSITIVE - 40

NEGATIVE - 13

OTHER – 129

The majority of responses were in favour of a Wales-wide approach to addressing nitrate pollution which would remove the need for complicated calculations for calculating slurry storage for farms partly in an NVZ. This would also remove competitive issues.

Similarly, one consultee who did not wish to see a whole territory NVZ felt that the proposal is too complicated and that the NVZ storage capacity requirement should cover the whole farm if partly in an NVZ making the regulations much simpler.

A small number of stakeholders felt that the methodology used to determine storage requirements is not fit for purpose, such as the concept of livestock units due to the varied nature of bovine species and as rainfall forecasting is not reliable.

Some of those supporting the proposal and preferring a whole territory approach raised the issue farmers will face in achieving the required storage capacities and the cost of implementing it. It was suggested by some of these respondents the Welsh Government

would need to implement a substantial grant scheme if farmers are to stay in business. In particular planning issues were raised as a concern as were the difficulties for tenant farmers, where landlords may not be willing or able to provide the finances for new slurry storage facilities. Factors such as TB restrictions and unusual levels of rainfall were also mentioned as areas of concern in the responses.

One farm responded if farmers have to upgrade slurry storage, it would be very short sighted to not meet the NVZ capacity, stating once a farm has operated with an NVZ compliant slurry store and lived with the benefits, it would not want to operate any other way. This statement also considered that financial assistance for these stores and planning need to be provided.

Many responses, from both those in favour of a whole territory NVZ and those in favour of discrete designations raised the concern that adoption of the proposal could lead to the export of slurry to non-NVZ areas.

One response suggested that the assumption being made in the development of the proposal is that large slurry stores and closed periods are the answer, while the evidence does not support this conclusion.

Question 23 - If not, how do you propose the rules should be clarified?

ALL WALES NVZ - 124

FUNDING - 1

EVIDENCE NEEDED - 5

OTHER – 7

The majority of consultees favoured a whole territory NVZ approach, with almost all of these providing the reduction in complexity of the regulations as the reason.

Some thought the proposal should be based on actual risk and evidence based, referring to a lack of evidence to support the proposal. Similarly, one stakeholder argued it was unclear in the consultation if the changes are proposed in response to an observed issue or a theoretical risk. The point was made if land outside of an NVZ is being excessively loaded there would be an observed detrimental impact upon water quality in land surrounding the designated areas. The stakeholder highlighted no evidence was presented within the consultation to this effect and the risk is therefore likely to be a perceived or theoretical. The proposal was therefore not supported.

One consultee responded additional NVZs will result in unintended consequences, causing potential damage to coastal areas and tourism.

Question 24 - How do you think the proposed Action Programme changes will impact on the practical management of typical farm enterprises in the new or existing zones?

The majority of those responding raised the need for more investment in nutrient facilities and management, whether in favour of the principle of NVZs or against. In this respect, the current economic situation and low returns on farm produce were considered the main reasons financial support should be provided to assist farmers to meet costs.

A better, long term solution was proposed where farmers get a return on their produce which is more in balance with the costs of production, including the costs of meeting the required environmental standards. Currently other sectors such as water supply, fisheries and conservation are picking up the consequences and associated costs of the impacts of agriculture. It was believed the action programme in such circumstances would result in a more resilient and sustainable agriculture sector in Wales.

The wider impacts of policies impacting upon farm business viability were detailed in the responses. Farm businesses underpin the vibrancy of many rural areas with each farm business shown to trade with between 40-80 other local businesses, all of which are important sources of employment. Agricultural contracting businesses have concerns they will have to lay off staff during the closed periods with the fear they will be unable to re-recruit skilled employees again at the end of the closed period, as they will find alternative employment and may leave the area.

Individual farm businesses responding to the consultation highlighted the financial costs. The requirements for five months of slurry storage will mean for one business it would have to invest in a new slurry lagoon to be compliant with NVZ rules. This cost was estimated to be in excess of £100,000 and comes at a time when there is no spare capital in the business due to years of low milk prices. Another farm reported its slurry storage is sufficient for two months only, depending on rainfall levels. The NVZ requirements for five months of storage of slurry would mean the farm would have to spend a minimum of £50,000 to construct a new slurry lagoon and this level of investment would be difficult given the very low milk price received over the last few years.

Another identified that despite large investments over many years the proposed action programme will result in a requirement of 50% more storage and a capital cost of approximately £90,000. For one business the existing capacity of the store is just three months. The requirement to increase to five months has been quoted as £90,000. One farm reported that it has high standards but storage availability is between 6-8 weeks depending on weather, so if the proposals are implemented the farm would have to consider investing anywhere between £50-100,000 only to meet storage regulations.

The flexibility of businesses to operate with sufficient flexibility to adapt to weather, soil and growing conditions was raised as a significant issue. It was argued that the proposals will force farmers into carrying out operations against their better judgment. Fields would need to be cultivated at inappropriate times with associated costs for crops which might not grow and benefit the soil, compressing the farming calendar by enforced windows would add labour costs at a time when margins are already low.

Potential solutions to these issues were identified. It was argued that farmers should be allowed to manage their land according to best practice and weather/soil conditions/land use. Farms could be part of a nutrient off-set scheme which is auditable and data from all farms could be collated to demonstrate the level of nutrient leaching which has been prevented each year by the implementation of on-farm mitigation methods as approved by the enforcement body.

The nitrogen application limit of 170kg of N/ha/yr were reported to be of concern with the potential for significant impact on yields, an issue for those selling silage as part of their business and which would potentially make it unviable for growing cereals on some holdings. Furthermore, the limits on application of N on grassland will affect grass growth and may lead to reduction in stock numbers to achieve compliance, which will in turn impact upon profitability.

The closed period was viewed as detrimental to production as waiting until late spring to spread livestock manure would contaminate spring grass growth, preventing the full utilisation of the best grass for grazing and silage. This was argued to have a serious, negative impact on the beef enterprise which relies on quality grass for efficient production and ultimately business profitability. It was reported preventing applications of fertiliser to grass over the winter period will reduce yield in February/March which will be damaging to systems based on grazing at this time. Concerns were also raised about the availability of contractors for spreading slurry in early spring as demand would be unusually high.

Paperwork, in particular the concern of penalty for trivial matters of non-compliance was also raised as an issue. It was felt that this contradicts the Welsh Government objective to reduce red tape.

It was requested TB restrictions are considered in any decision following the consultation. It was noted the greatest increase in new NVZ designations proposed will occur in Pembrokeshire, including in the area identified under the TB order as a High TB Area. Farmers residing within this area will thus suffer the compounded effects of regulation pertaining to more restrictive TB control requirements and those relating to compliance with NVZ regulation.

Environmental considerations were also raised in response to this question. Some felt that the spreading restrictions would lead to spikes in manure applications before and after the closed periods. Others identified farm businesses may resort to out-wintering animals to avoid the need for increased slurry storage, which would lead to damage to soils and water due to poaching.

The state of storage facilities for slurry in Wales was of considerable concern to many stakeholders. The situation was reported as clearly unacceptable and represents significant risk to the environment. Recent Category 1 farm pollution incidents, such as that occurring on the River Teifi resulting in serious and extensive environmental damage, were referred to in calling for urgent and extensive investment in improving farm waste facilities and management.

Question 25 - In the future, how should natural resource planning and management be considered as an alternative solution to tackling nitrate pollution?

This question provided a number of comprehensive responses from a number of differing view points.

Enforcement was a large topic of debate through answering this question. There was concern by a number of respondents about the importance of how any new regulations are enforced. One viewpoint was how the current NVZ regulations are only enforced when an incident has occurred, rather than making sure farms which store slurry conform to the regulations.

Two respondents felt there should be greater powers for monitoring and enforcement, with higher penalties for non-compliance. However, another felt prosecution should be a last resort, to act as a deterrent when advice is ignored and remedial action is not undertaken.

It was widely questioned, with the current pressures on budgets both within Welsh Government and Natural Resources Wales, how effectively any new regulations could be enforced, especially if a whole territory NVZ was adopted. To this end, it was felt that there should be a more cohesive working arrangement between both the NRW Inspections Team and Rural Inspectorate Wales in relation to on-farm storage of slurry and silage. This includes Welsh Government which should be able to practically demonstrate how it will enforce more stringent regulations.

This question also attracted comments that as agriculture and environment sits under one Ministerial remit, it should be straight forward for these two areas to compliment each other in a more progressive manner.

Respondents also felt the designation of NVZs only has an impact on the agricultural sector, which is only one contributor to water pollution issues. Therefore, more should be done to tackle other industrial contributors as well, rather than look for quick wins within the agricultural industry.

There were many suggestions that rather than stricter enforcement, authorities should work together with the farming industry to put together workable solutions to prevent future pollution incidents. It was felt this could be done through better education of the regulatory requirements, alongside specific on-farm guidance. It was felt that the latter should be tailored to each individual farm, as most enterprises operate in different ways. Therefore off-the-shelf information may not achieve any great difference to the current situation. It was suggested Farming Connect should move from a more generic awareness raising platform to a model which gives farmers the opportunity to investigate how they can specifically target measures to mitigate potential pollution incidents.

There as also a call for Welsh Government to look at ways in which farming businesses could be supported to monitor soil health in order to manage. It was noted due to diminishing profit lines farming businesses were not prioritising soil health and this needs to be addressed so efficient nutrient management can be achieved.

One point was raised that the industry is becoming confused with the amount of organisations involved in devising, monitoring and enforcing a multitude of legislation.

Rather than this, there should be a 'consolidation' approach which reduces misunderstandings within the industry.

Nitrate Management Plans featured heavily within the responses to this question. It was felt regulators should work more closely with individual farming businesses to make sure that plans are fit for purpose rather than something on file in case inspected.

Some felt the 'Blue Flag Farming' approach being developed by farmers should be investigated to be used on other farming businesses, not necessarily those operating within the NVZ territories. Adopting an industry standard would help to address the nitrate situation without the need for an increase in the NVZ territory.

It was requested the Welsh Government direct money from the Rural Development Plan for more farm investments to deal with slurry storage. The industry would be far more receptive and be more cooperative with regulators to improve on farm facilities if this occurred. However to counterbalance this some felt that it was not a good investment of public money to bring farming businesses up to regulation standards, which they should be doing in any case.

Some respondents felt that the focus on nitrates is not going far enough to address the issues surrounding our natural environment. For example ammonia and phosphates were also to blame in the condition of our waters.

It was reported farming businesses need to act more responsibly as not only do they produce food, but also claim to be custodians of the environment. The ways in which they manage our air, soils and water remain pivotal to the outcomes of the Wellbeing of Future Generations (Wales) Act 2015 and Environment (Wales) Act 2016.

Respondents argued any changes to the legislation needed to be based on robust research and evidence and in a partnership approach with all stakeholders, including farmers affected by the regulations.

Two respondents felt that on a farm level, the use of buffer strips and woodland management and creation would help mitigate against water run off and soil erosion.

Question 26 - We do not believe that this policy affects opportunities for people to use Welsh or treats the language less favourably than English, or that it could be reformulated or revised to have positive effects. If you disagree, we would welcome your comments on this issue.

DETRIMENTAL EFFECT– 126

NO EFFECT – 121

OTHER - 4

Responses to this question brought about a strong reaction in that changes to NVZ Regulations have the potential to negatively impact on the Welsh language.

Many of the respondents felt that the introduction of an all territory NVZ would lead to a reduction in the use of the Welsh language. This being justified by the view that the increase in regulations and cost to the industry will create job losses in the rural regions of Wales,

which in many communities will deplete the number of people who speak in the medium of Welsh. There is a concern that rural areas may see depopulation as people seek employment in other areas.

Some consultees felt an all territory NVZ would potentially have the greatest impact on smaller family farms, who will struggle to comply with any change to the regulations. It was thought this group represents the higher proportion of Welsh language speakers and, therefore, will have larger implications on this group.

One respondent felt both the Welsh Government and Natural Resources Wales need to carefully review the effectiveness of their current water management policies as there were many unintended consequences attached to them. Instead the respondent considered more focus and emphasis should be placed on supporting the rural communities and the economy, rather than implementing every European Directive.

There were also concerns there would be possible negative impacts on the Wellbeing of Future Generations (Wales) Act 2015, in that public bodies must work to achieve 'a Wales of vibrant culture and thriving Welsh language'.

Another respondent raised the point that 'is pollution any different if the polluter was English or Welsh speaking?' Therefore any legislative changes should not impact upon the Welsh language. Conversely, another comment was made that it is likely to impact heavily on the importance of the Welsh language and therefore it is vital, before changes are made to the regulations, the necessary impact assessments are undertaken to mitigate against any effects on the Welsh language or Human Rights.

One respondent who agreed with the question thought language should not be a fundamentally important factor in any new regulations. However, it was essential that a Welsh identity was maintained through clean waters and a beautiful countryside. This would be achieved through an all territory NVZ, nevertheless, this would be a long term opportunity but may create issues for some farming businesses short term. It was also pointed out that farming businesses need to change their outlook and rather than focus on production, more concentration needed to be placed on Payment for Ecosystem Services to increase the environment standards in Wales, which will inevitably increase the tourism offering and, as a by product of this, help the local rural economy.

LIST OF RESPONDENTS

Tenant Farmers Association
Afonydd Cymru
Clwyd, Conwy and Gwynedd Rivers Trust
Marine Conservation Society
Royal Society for the Protection of Birds (RSPB) Cymru
Carmarthenshire Council Conservation Section
Carmarthenshire County Council
Country Landowners Association (CLA) Cymru
United Utilities
Coxlake farms
Dwr Cymru
Farmers Union of Wales (FUW)
Farming & Wildlife Advisory Group (FWAG) Cymru
Salmon Trout Conservation Cymru
Angling Trust
Hybu Cig Cymru
Soil Association
Tregaron Angling Society
Gwent Angling Society
Llanilar Angling Association
National Parks
National Trust
Nevern Angling Association
NFU Cymru and Puffin Produce
Osprey Fly Fishers Association
Owen Lewis Pembrokeshire Association
Co-operative
Pembrokeshire County Council
Pembrokeshire Rivers Trust
Campaign for the Protection of Rural Wales
National Farmers Union (NFU)
Welsh Dee Trust
Menai Strait Fishery Order Management Association
Sea Trout Wales
Severn Rivers Trust
Planed (Org)
Llanrwst Anglers Club
Teifi Rivers Trust
Tenant Farmers Association Cymru
Tetramorium08
Waterways Milford Haven
Wildlife Trust Wales
Wye and Usk Foundation