**Initial DAERA Position on the recommendations of the Expert Working Group in "Making Ammonia Visible": May 2018**

| **Expert Working Group Recommendation** | **DAERA Response** |
|---|---|
| Overarching Recommendation – To achieve a sustainable future for Northern Ireland's agri-food sector, ammonia emissions must be addressed through a partnership approach which incorporates communication and education on ammonia, investing in filling our ammonia knowledge gaps and implementing a range of ammonia mitigation measures; and not on contracting the size of this sector. | DAERA agree that a partnership with the agri-food and environment sectors is required to comprehensively address the issue of agricultural ammonia by reducing emissions and the associated impacts on nature. DAERA agrees that communication and education on the importance of ammonia mitigation, improving the evidence base and increasing the uptake of mitigation measures are key to achieving a thriving and prosperous agri-food sector which is protecting and enhancing the environment. |
| **1. Making Ammonia Emissions Visible** | |
| a. Develop a more timely, transparent, thorough and robust method of improving our knowledge by filling the significant | DAERA has commissioned a scientific research programme on ammonia from AFBI, including UK partners. This programme will |

| | |
|---|---|
| evidence gaps around the ammonia emission baselines and emission factors, in collaboration with a UK-wide partnership. Communicate progress on the development of this improved information to a multi-stakeholder forum, such as the revamped Agri Emissions Partnership, so that this successful cross sector stakeholder partnership can give sectoral leadership and receive six monthly updates from DAERA on how the knowledge gaps are being filled. | further strengthen the evidence base around ammonia emission factors and feed additional NI-specific data into the models used to produce ammonia emission and nitrogen deposition maps, as well as informing decision-making on ammonia. It will also assess, investigate and quantify a range of ammonia mitigation measures.<br><br>We agree that any revamped Agri Emission Partnership or other Stakeholder Partnership on ammonia should receive regular updates on the research programme. |
| b. Establish an enhanced regime for the monitoring of atmospheric ammonia and nitrogen deposition across Northern Ireland on a daily basis, with the simultaneous recording of the weather, so that the results are sufficiently detailed to define the causes. This information must be communicated to farmers in order to positively influence farmer behaviour through means such as farmer discussion groups. As nitrogen deposition from ammonia emissions is such a localised problem, recording sites need to be | The DAERA-funded Ammonia Research Programme, led by AFBI in partnership with the Centre for Ecology and Hydrology (CEH) and Rothamsted Research, will enhance the monitoring of ammonia by undertaking a 1 year study of atmospheric ammonia concentrations with 20-30 monitoring sites. This additional ammonia monitoring will also allow a validation of modelled concentration and nitrogen deposition estimates. DAERA agree that some monitoring stations should be at |

| | |
|---|---|
| sufficiently numerous, including at some of our designated sites and priority habitats, to assess and promote local understanding by showing farmers the “cause and effect” of farming practices on ammonia emissions and subsequent nitrogen deposition. | designated sites and priority habitats and efforts will be made to achieve this.<br><br>The monitoring sites will feed into the UK-wide National Ammonia Emissions Network and will use the same monitoring technology used within the network giving a monthly sampling frequency. The potential to incorporate additional localised NI weather data into the models used to estimate atmospheric ammonia concentrations and nitrogen deposition will be investigated.<br><br>Continuous monitoring of ammonia concentrations using optical analysers will be undertaken at AFBI Hillsborough. This high-resolution monitoring site should allow the ‘cause and effect’ between agricultural management practices and ammonia deposition to be recorded and assessed, as AFBI Hillsborough keeps detailed management data.<br><br>Plans will be developed for full engagement with farmers at the new monitoring sites with a co-ordinated approach involving |

| | |
|---|---|
| | AFBI, CAFRE and where appropriate CEH and Rothamsted Research.<br><br>Following the initial one year study, DAERA will review the operation of the monitoring and the farmer engagement and consider how any future monitoring programme should proceed. |
| c. To give transparency to the Sector, review the thresholds at which detailed ammonia modelling is required for the assessment of applications for new livestock units as compared to other parts of the UK and the Republic of Ireland and publically articulate the justification for the existing evolved Northern Ireland thresholds. | The DAERA Project Board on Ammonia Reduction has identified the Department's Operational Policy on Regulation as one of its key workstreams. A review of operational policies will consider the regulatory position in other jurisdictions, as well as the particular profile of ammonia emissions in Northern Ireland and associated environmental impacts.<br><br>The results of this review will be incorporated within the DAERA Action Plan on Ammonia. This Action Plan will be subject to public consultation. |

| | |
|---|---|
| d. DAERA should immediately adopt the following six guiding principles and approaches in assessing planning applications; | In respect of the six guiding principles proposed by the Expert Working Group; |
| • Communicate and explain the current planning process and requirements and the ammonia mitigation options available | • DAERA agree that the planning process and ammonia mitigation options should be clearly communicated and will work with the District Councils, as the competent authorities responsible for planning, to achieve this. |
| • Prioritise mitigating and reducing ammonia emissions at the Northern Ireland scale first, and at a local level secondly | • DAERA recognise the need to address background emissions of ammonia across Northern Ireland. Whilst achieving significant ammonia reductions across Northern Ireland will reduce nitrogen deposition throughout the region, local action will also be required to avoid damage to sensitive sites and priority habitats, in line with legislative requirements. Both background and local levels of ammonia will be addressed through the DAERA Ammonia Action Plan |
| • Recognise total ammonia emission reduction measures being proposed by farmers and consider this when making a decision on their planning application | • The impact of all relevant proposed ammonia mitigation measures will be considered while assessing planning applications, in liaison with the planning authorities on issues |

| | |
|---|---|
| | such as planning conditions. This assessment must also take into account the Department's legal obligations. |
| • Minimise the risk of perverse incentivisation of farmers to choose smaller, less efficient ways of modernising in an effort to circumnavigate ammonia mitigation obligations | • DAERA will encourage farmers to liaise with their local planning authority regarding any proposed development, particularly those which could impact negatively on European protected sites, such as Special Areas of Conservation or Special Protection Areas. Such development may not be carried out under permitted development rights without prior notification from the planning authority. DAERA will engage with the planning authorities to ensure appropriate guidance is in place for farmers. |
| • Accept that farmers who agree to reduce their total ammonia emissions from their current emission levels are not creating a new "adverse impact" | • DAERA's position on this recommendation will be based on legal advice on the assessment of the project and consideration of existing impacts from the farming enterprise. |
| • Facilitate access for applicants who are encountering difficulties in achieving approval for farm development | • DAERA will consider how advice on mitigation options can be provided in the most effective way possible to applicants |

| | |
|---|---|
| due to the impact of ammonia emissions to the appropriate experts on ammonia mitigation options. | who experience difficulties in reducing emissions to acceptable levels / achieving approvals, including through the restructured DAERA Knowledge Advisory service and its dedicated air quality advisory team. |
| e. Review the planning application process to ensure that all appropriate guidance on ammonia is provided and that all relevant information is sought at the earliest possible opportunity to minimise delays. | DAERA will work with the planning authorities to ensure that guidance is comprehensive and that information is sought at the most appropriate opportunity so that that the planning process is as efficient and timely as possible. |
| f. To provide assurance that the regulatory process is not "double counting" some emissions from approved farm developments, DAERA should communicate directly to stakeholders outlining how their "in combination" spreadsheet is compiled, how it operates, and why it is needed over and above the models. | DAERA is happy to meet with stakeholders to discuss how information on predicted emissions from 'permitted' activity is recorded and used. |
| **2. Optimising the Evidence Base** | |

| | |
|---|---|
| a. Undertake the scientific work necessary to define an emission factor for slatted-floor slurry systems for use in the national ammonia inventory. Ensure that this new emission factor is fully accounted for in considering planning approvals. | The ammonia research programme funded by DAERA and led by AFBI aims to develop an emission factor for slatted floor systems. When the new emission factor has been accepted into the ammonia inventory, it will be used in all relevant decision making processes. |
| b. Take proper account of scientific findings relating to the impact on ammonia emissions of reductions in crude protein in pig diets when assessing applications for pig farm developments. | DAERA will take proper account of scientific findings relating to reduced crude protein in pig diets. Scientific research shows that lower crude protein diets will reduce ammonia emissions from pigs by 8-10% for every 1% reduction in dietary crude protein. This reduction in ammonia emissions can be applied where appropriate evidence is provided on the crude protein level of the pig diets being used / proposed. Examples of appropriate evidence include providing a demonstration that the crude protein levels are lower than those in a typical commercial pig ration, either by using a specific low protein ration from a feed supplier, or through historical evidence comparing the current ration to a typical ration from the year 2000 when most of the scientific measurements of ammonia were carried out. |

| | |
|---|---|
| c. Quantify the correct emission factors for dietary crude protein reduction for livestock other than pigs. Take these corrected emission factors into account in decision-making. | The ammonia research programme funded by DAERA and led by AFBI aims to, where appropriate, define the revisions to emission factors required for non-pig livestock diets which include reduced crude protein. Where new emission factors have been accepted into the ammonia inventory, these will be used in all relevant decision making processes. |
| d. Quantify the correct emission factor for poultry units following the recent substantial switch to “dry air” heating systems. Take this corrected emission factor into account in decision making. | The ammonia research programme, funded by DAERA and led by AFBI, aims to develop an emission factor for dry air heating in poultry houses. When the new emission factor has been accepted into the ammonia inventory, it will be used in all relevant decision making processes. |
| e. Ensure and communicate to stakeholders that all available evidence from Northern Ireland on N excretion from livestock is properly taken into account in the measurement of ammonia emissions and nitrogen deposition. | The ammonia research programme funded by DAERA and led by AFBI will feed the most relevant NI data on N excretion from livestock into the ammonia inventory and models. Progress on the research programme will be communicated to stakeholders at regular intervals. |

| | |
|---|---|
| f. Ensure and communicate to stakeholders that the weather data used within the nitrogen deposition assessment process is as accurate as possible. Weather data should be recorded at each current and future ammonia and nitrogen deposition monitoring site. | The nitrogen deposition monitoring programme to take place as part of the AFBI-led ammonia research programme will harness weather data from networks currently established. Specific weather data at each site is cost prohibitive and may not be sufficient to provide the information needed since weather data at the point of emission is also needed ideally. It is proposed that weather data from current networks will provide a broad spectrum picture of weather across the province. |
| g. Research should be commissioned into the costs and benefits of a range of slurry additives to mitigate ammonia emissions. There should also be research commissioned examining the trade-offs between using slurry bubbler systems to improve human safety and perversely, increasing ammonia emissions. | Future research will be considered by the Science Workstream within the DAERA Project Board on Ammonia Reduction |
| h. (i) Government should ensure that the process for commissioning scientific research is sufficiently agile to meet emerging urgent policy needs | DAERA has recently commissioned a portfolio of new research and development projects in a bid to fill the main evidence gaps identified by the Expert Working Group as quickly as possible. |

| | |
|---|---|
| (ii) Government and the agri-food sector should work together to create a culture of innovation which encourages private sector involvement in the development of new scientific knowledge, particularly where such knowledge can contribute to improved farm efficiency and better environmental performance. Government should do all it can to facilitate the private sector in providing this investment. | The process for commissioning research to meet the Department's evidence and innovation is kept under review. As part of DAERA's Science Transformation the longer term science needs of the Department will be considered with emphasis on ensuring the process is sufficiently agile to meet urgent policy needs and that it facilitates a culture of innovation. |
| i. Develop a MACC for agricultural ammonia in Northern Ireland to prioritise ammonia abatement measures based on cost-effectiveness, using local evidence as far as possible. | The ammonia research programme, funded by DAERA and led by AFBI, aims to assess the costs and environmental impact of the various ammonia mitigation measures, and particularly the ten mitigation measures identified by the Expert Working Group. Following the completion of this work, DAERA will assess the best options for presenting the analysis of the potential and costs of the mitigation options. |
| j. Improve and communicate the scientific evidence base so that robust assessment can be made at farm and NI level of | The ammonia research programme, funded by DAERA and led by AFBI, aims to assess the cumulative impact of uptake of multiple ammonia mitigation measures. The results of this |

| | |
|---|---|
| the cumulative impact of uptake of multiple mitigation measures. | assessment will inform the DAERA Action Plan on Ammonia. This Action Plan will be subject to public consultation. |
| k. Address the knowledge gap and manage the communication carefully around the impact of agricultural ammonia emissions, the subsequent formation of atmospheric particulate matter and its effect on human health. | The impact of agricultural ammonia in the formation of Particulate Matter is already being addressed in UK scientific research. DAERA notes the current scientific uncertainty around the contribution made by agricultural ammonia in the formulation of the particulate matter which negatively impacts on human health. All DAERA communication around the impact of agricultural ammonia on human health will be in line with prevailing scientific opinion. |
| **3. Mitigating the Emissions** | |
| a. Farmers should implement land management techniques to extend their grazing season where possible, thereby reducing the level of ammonia emissions from ruminant livestock. | DAERA will support farmers in implementing this recommendation by incorporating the land management techniques which can provide an extended grazing season within the DAERA advisory programme. |

| | |
|---|---|
| b. Farmers should consider applying treated or stabilised urea fertilisers where these can maintain agronomic output, and particularly where stabilised urea can displace straight urea fertiliser. By 2020, the use of straight urea fertiliser should no longer be permitted. | DAERA will support farmers in implementing this recommendation by incorporating the benefits associated with the use of stabilised urea within the DAERA advisory programme. The forthcoming consultation on the DAERA Action Plan on Ammonia is likely to include the proposal to ban the sale of straight urea fertiliser. |
| c. Farmers should apply slurry and manure earlier in the season, where land and weather conditions allow. If the farmer has a choice and where possible, slurry and manures should be spread in the early morning or evening, but not on warm, windy days. This will not only reduce ammonia loss, but also improve the efficiency of nitrogen use within the production system. | DAERA will support farmers in implementing this recommendation by incorporating best practice on slurry and manure spreading within the DAERA advisory programme. |
| d. Accelerate the significant increase of the proportion of slurry and manures which is applied on land by dribble-bar, trailing shoe/hose, band spreader or shallow injection. Take steps to prohibit the sale of new slurry spreading equipment without | DAERA will support farmers in implementing this recommendation by incorporating encouraging the use of low emission spreading techniques within the DAERA advisory programme. DAERA has continued to support uptake of low |

| | |
|---|---|
| low emission technologies by 2020 in preparation for a total ban on spreading slurry and manures by splashplate by 2025. | emission spreading equipment through its capital grant schemes, most recently in the FBIS-Capital Tier 1 scheme which was open in January & February 2018. The forthcoming consultation on the DAERA Action Plan on Ammonia is likely to include the proposal to restrict the sale of new slurry spreading equipment with a splashplate only, in preparation for a total ban. |
| e. Farmers should recognise and embrace the benefits of brushing, scraping and washing livestock housing and handling areas and prioritise these tasks. As well as reducing ammonia emissions, this can produce significant reductions in animal lameness and associated production losses. | DAERA will support farmers in implementing this recommendation by incorporating communication on the benefits of brushing, scraping and washing livestock housing and handling areas within the DAERA advisory programme. Under the FBIS-Capital, DAERA has provided grant support for the construction of new livestock and handling areas that take account of increase water usage to facilitate washing. |
| f. Identify the optimal strategies to reduce crude protein intake in livestock diets while maintaining and enhancing livestock performance and communicate these to farmers for adoption. Regulators must also ensure that adoption of these practices is properly recognised in planning decisions. | The forthcoming AFBI research programme will identify the optimal strategies to reduce crude protein intake in livestock diet while maintaining and enhancing livestock performance. DAERA will support farmers in implementing this recommendation by incorporating these strategies within the DAERA advisory |

| | |
|---|---|
| | programme. Where new emission factors relating to reductions in crude protein have been verified to the appropriate standards, this will be taken into account in all relevant decision making processes. |
| g. Livestock farmers should utilise the most feed efficient genetics to increase efficiency and reduce ammonia emissions. | DAERA will incorporate within its advisory programme the ammonia abatement benefits of improving efficiency through genetics as a breeding objective. |
| h. Farmers should establish woody species around livestock units where these can decrease the deposition of nitrogen on environmentally sensitive sites. Government should produce and communicate guidance on best practice for planting and maintaining tree-belts to maximise ammonia capture and catching and treating farm dirty water. Government should also financially support establishment of these tree-belts. Research should identify how biosecurity can be ensured around such plantations. | DAERA will consider how financial support for establishing treebelts around livestock units as recommended by the Expert Working Group can be provided through existing and future agri-environment schemes. DAERA will support farmers in implementing this recommendation by incorporating the establishment of these treebelts within the DAERA advisory programme. DAERA will consider the need to produce guidance on best practice for planting and maintaining tree-belts and this guidance will reflect the need for a risk-based approach to maintaining biosecurity. |

| | |
|---|---|
| i. All new installations of above ground slurry stores and renovations associated with existing stores which are in receipt of capital grant support should be fitted with a cover. | The forthcoming consultation on the DAERA Action Plan on Ammonia is likely to include a proposal to make covers mandatory in the construction of new above ground slurry stores. |
| j. New developments of livestock housing should include appropriate ammonia abatement technologies with priority for capital grant support given to those developments which maximise ammonia abatement. The inclusion of these abatement technologies should be recognised and rewarded in planning decisions. | DAERA capital grant schemes can be amended to give greater priority to providing support for the installation of appropriate ammonia abatement technologies on farms. DAERA will support farmers in implementing this recommendation by incorporating the need for, and benefits of, ammonia abatement technologies within the DAERA advisory programme.<br><br>Where ammonia abatement technologies are included within proposals for farm development, DAERA will take this into account in all relevant decision making processes. |
| **4. Achieving Behavioural Change** | |
| | |

| | |
|---|---|
| a. Revamp the Greenhouse Gas Implementation Partnership to incorporate ammonia within its remit. The new Agri Emissions Partnership should establish an awareness and communication campaign for all farmers on the issues associated with agricultural ammonia to deliver positive behavioural change leading to reduction of ammonia and greenhouse gas emissions. It should also provide stakeholder input on research and capture and communicate positive behavioural change on ammonia and greenhouse gases to policy and regulatory decision-makers and the marketplace. | DAERA notes the proposal that the Greenhouse Gas Implementation Partnership should be revamped to incorporate ammonia within its remit. DAERA will engage with the current GHGIP, beginning with its 4 sub-groups, to take its views on the proposal to move to a wider Agri Emissions Partnership to include ammonia. Any future action to implement this recommendation should be subject to the views of the existing Partnership, and to a review of its remit and membership.<br><br>DAERA agree that new Stakeholder Partnership addressing ammonia should establish an awareness and communication campaign for farmers and the marketplace, as well as providing stakeholder input on research. |
| b. The ruminant sector must engage on the topic of ammonia emissions and play its part in implementing mitigation measures, including through participation in the new Agri Emissions Partnership. This partnership must recognise the diverse nature of the ruminant sector and devise a means of | DAERA agree that a key focus for any new Agri Emission Partnership will be to engage the ruminant sector to encourage positive behavioural change. |

| | |
|---|---|
| encouraging positive behavioural change based on trust and mutual respect. | |
| c. DAERA should develop an agreed position on its approach to ammonia emissions. This approach should be consistent both with achieving the targets outlined in 'Going for Growth' and meeting our environmental obligations. All branches of the DAERA family should play their part in communicating this message. DAERA must also take a leading role as part of the revamped Agri Emissions Partnership. | DAERA will be developing a comprehensive approach to ammonia emissions through its Project Board on Ammonia Reduction and the forthcoming DAERA Ammonia Action Plan. This approach will set out a strategic vision and detail the practical steps required to achieve a sustainable agriculture sector which delivers good environmental performance, protection of the natural environment and legislative compliance from thriving and prosperous farms. |
| d. Incorporate ammonia mitigation measures within the comprehensive advisory programme on Sustainable Land Management. The programme should focus on the training of public, private and voluntary sector advisors through an accredited course and qualification. These advisors will then roll out the programme to farmers. | The DAERA advisory programme, led by the new CAFRE Knowledge Advisory Service, will incorporate the ammonia mitigation measures highlighted by the Expert Working Group. DAERA will consider the need to provide an accredited course and qualification on sustainable land management and ammonia mitigation to public, private and voluntary sector advisors as part of the development of the DAERA Ammonia Action Plan. |

| | |
|---|---|
| e. For the purposes of implementation, the proposals in this ammonia annex should be considered as an integral part of the Northern Ireland agri-food sector's plan for sustainability | DAERA agrees the Northern Ireland agri-food sector must address ammonia emissions in its future plans. |