

# Economic impact of ammonia restrictions in NI

Prepared for DCNI on behalf of UFU, NIMEA, NIPF,  
NIP&BF, NIGTA and LMC

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# Glossary

A glossary of terms used throughout the report is included below.

**General Terms:**

£k - Thousands of pound sterling

£m - Millions of pound sterling

AFBI - Agri-Food and Biosciences Institute

CAPEX - Capital Expenditure

CAFRE - College of Agriculture, Food, and Rural Enterprise

CfE - Call for Evidence

DAERA - Department of Agriculture, Environment and Rural Affairs of Northern Ireland

DCNI - Dairy Council of Northern Ireland

GVA - gross value added

Ha - Hectares

IPPC - Integrated Pollution Prevention and Control

kT - Kilotonnes

MPANI - Mineral Products Association Northern Ireland

NH3 - Ammonia

NIEA - Northern Ireland Environment Agency

NI - Northern Ireland

**General Terms (continued):**

PC - Process Contributions

SAFFO - Silage, Slurry and Agricultural Fuel Oil

UK - United Kingdom

UN - United Nations

**List of Local Authorities referred to in the analysis:**

AN - Antrim & Newtownabbey

AND - Ards & North Down

ABC - Armagh City, Banbridge & Craigavon

CCG - Causeway Coast and Glens

DCS - Derry City & Strabane

FO - Fermanagh & Omagh

LC - Lisburn & Castlereagh

MEA - Mid & East Antrim

MU - Mid Ulster


NMD - Newry, Mourne & Down

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# Executive summary

# Scene setting

| Theme  | Key findings  |
|--|---|
|  <p>Scene setting</p> | <ul style="list-style-type: none"> <li>• <b>Under the current framework for the regulation of ammonia emissions in NI</b>, regulations have implications for planning permissions required for maintenance and construction of agricultural buildings, such as animal housing. At “<b>Designated sites</b>” in NI, when applying for planning permission or an IPPC licence, <b>it is necessary to keep ammonia levels below certain levels</b>, these ammonia levels are known as <b>Process Contributions (PCs)</b>. Ammonia emissions from farms and land spreading areas are measured in these designated sensitive habitats and assigned to farms within a 7.5 kilometre “zone of influence”, which covers 97% of NI’s land mass.</li> <li>• <b>Process Contributions (PCs)</b> are defined as the share of emissions a farm contributes to ammonia emissions at a designated site. Ammonia PC’s are set to a threshold of 1% of the Critical Level within these zones of influence around a designated sensitive habitat. Any buildings which cannot meet the permitted development criteria are required to submit planning applications for the maintenance and construction of agricultural buildings exceeding 500 sq. metres in size<sup>[a]</sup>.</li> <li>• <b>DAERA has issued the Draft Ammonia Strategy consultation</b> for Northern Ireland for which it is issuing an open <b>Call for Evidence</b> on the “Future Operational Protocol to Assess the Impacts of Air Pollution on the Natural Environment” - <b>DAERA has proposed more stringent regulation on ammonia emissions</b>, with specific research and strategy documents that inform these proposals <b>suggesting that NI’s agricultural ammonia emissions be reduced by at least 30%</b> based on 2020 emission levels.</li> <li>• <b>DAERA proposals include specific changes to the current regulatory planning framework, especially in relation to Process Contributions (PCs) being reduced from 1% to 0.1%</b>. This includes most livestock-based agricultural processes within that 7.5km range. This will have an <b>impact on several farms</b>, as planning applications for the maintenance and construction of agricultural buildings becoming more complex.</li> <li>• <b>Farms that hold an IPPC licence</b> are also assessed under the ammonia protocol if they wish to make any variations (changes) on the farm. This also applies to any new farm increasing pig or poultry housing, with emissions above the IPPC threshold for the first time, these farms will also require assessment under the protocol even if planning permission has already been obtained.</li> <li>• Under the DAERA proposals, the <b>share of planning applications that would exceed the proposed PC limits would increase from 22% to 57%, and this could increase planning application approval times</b>.</li> <li>• The <b>potential economic impact</b> of these proposals are considered in terms of 1) the impacts of <b>unsuccessful planning applications</b> 2) the impact of deterred applications and investment, and 3) the <b>costs incurred</b> for implementing <b>mitigation measures</b> to reduce ammonia emissions.</li> <li>• Since 2017, the number of planning applications in the agriculture sector has fallen to a low point of 167 applications in 2020, which then increased to 230 in 2022<sup>[b]</sup>, while the <b>approval rate has fluctuated, with a low of 77% in 2019 and a high of 90% in 2022, while approvals can be slow and time consuming (58 weeks for the period June 2022 to June 2023)</b>.</li> </ul> |

**Note:** [a] In addition, developments below 500sqm may not be permitted if likely to cause an adverse impact. [b] The year statistics run from June – June of each year. For the period June 2022 to June 2023, applications totalled 219

# Potential impacts of the proposals

| Theme   | Key findings   |
|---|--|
| <p>Scene setting<br/>(Continued)</p>  | <ul style="list-style-type: none"> <li>While there are multiple potential <b>ammonia-specific mitigation measures</b> on the market, <b>some are more economically feasible in an NI context than others, for example, lower crude protein diets could support an NH3 reduction of up to 6.5%.</b></li> <li><b>Costs of mitigation measures</b> vary by measure and by sector, with <b>some farms having more/less scope</b> to fund investment in these measures. There are also practical reasons why some mitigation measures cannot be adopted on some farms for example, an existing slurry tank cannot support a cover.</li> </ul>   |
|  <p>Potential impacts of the proposals</p> | <ul style="list-style-type: none"> <li>Under the <b>DAERA proposals</b>, industry has indicated that there would be a <b>fall-off in farm level activity and turnover if a farm/farm business cannot secure planning approval.</b></li> <li>Based on <b>primary research</b> with NI farmers, <b>reduced investment in farm infrastructure</b> was ranked as the most likely negative impact arising from the new proposals, with 20% of respondents citing this as the key impact of these proposals.</li> <li><b>Reduced investment in infrastructure</b> could mean that ammonia mitigation measures such as implementing improved scrapers, slat mats in livestock sheds, and having covers for slurry pits could be delayed further, and prevent efforts to reduce ammonia emissions from agriculture.</li> <li><b>On a farm level</b>, under DAERA proposals, <b>income could fall by ~21% for a dairy farm, ~30% for a beef farm; ~7% for a broiler farm, ~8% for a layer farm and ~30% for a pig farm.</b> Note this is the <b>combined impact of planning applications being unsuccessful</b> and the <b>additional costs of implementing mitigation measures.</b></li> <li>Under the DAERA proposals, <b>economic output could fall in most sectors</b>, but this may be most significant in the <b>pig sector (-3.2%). Agriculture’s overall economic output could fall by up to ~£35 million.</b></li> <li>With <b>unsuccessful planning applications</b>, there could be a <b>knock-on impact</b> on the <b>construction sector</b>, especially construction businesses in the rural economy and for the local input suppliers of these businesses. Based on <b>industry feedback, unsuccessful planning applications</b> could lead to a fall in farm infrastructure investment of between 20% and 25%.</li> <li><b>Investment in mitigation measures</b> could generate <b>positive spillovers for the NI economy</b>, however the level of CAPEX required would necessitate some level of <b>public funding. Capital expenditure to reduce ammonia emissions</b> will flow through the economy, this could create <b>direct and indirect impacts, to the value of a £707 million addition to economic output.</b></li> <li><b>Opportunity costs could arise</b> in cases where farmers cannot secure permission to build a facility or where mitigation measures are not implemented (<b>Agriculture’s overall economic output could fall by up to ~£35 million</b>).</li> </ul> |

# Executive Summary: key numbers



## Farm level viability

**21-30%**



Under DAERA proposal scenario, on a farm level, income could fall by ~21% for a dairy farm and ~30% for a beef farm. <sup>[a]</sup>

**7-30%**



Under DAERA proposal scenario, on a farm level, income could fall by ~7% for a layer farm, ~8% for a broiler farm and ~30% for a pig farm. <sup>[a]</sup>

**£5K-£30K**



Once-off cost for a planning consent application can range between £5k and £30k.



## Sector level

**£35m**



Unsuccessful planning applications: Agriculture's overall economic output could fall by up to ~£35 million.

**20%-25%**



Based on industry feedback, unsuccessful planning applications could lead to a fall in farm infrastructure investment of between 20% and 25%.

**£707m**



Capital expenditure to reduce ammonia emissions could create a £707million addition to economic output.

**Note:** <sup>[a]</sup> Note this is the combined impact of planning applications being unsuccessful and the additional costs of implementing mitigation measures.



# Scene setting

# Overview of the DAERA proposals (1/2)

DAERA proposals for increased restrictions on ammonia Process Contributions (PCs) from farms will have administrative and economic implications for the agriculture sector.

## Baseline scenario

Ammonia emission regulations have implications for planning permissions required for maintenance and construction of agricultural buildings, such as animal housing:

- The current planning framework in Northern Ireland (NI) the Call for Evidence (CfE) set out how ammonia is currently regulated in the planning system.
- The agriculture sector contributes ~97% of ammonia emissions in NI. Current ammonia emissions stem from the dairy, beef, pig, and poultry sectors and from land spreading, fertiliser spreading and manure management activities.
- At “Designated sites” in NI, keeping ammonia levels below harmful levels are a particular priority to protect nature and biodiversity in these areas.
- Process Contributions (PCs) of ammonia emissions from farms are measured in these designated sensitive habitats and assigned to farms within a 7.5 kilometre “zone of influence”, which covers 97% of NI’s land mass.
- PCs are defined as the share of emissions a farm contributes to ammonia emissions at a designated site. Ammonia PC’s are set to a threshold of 1% of the Critical Level within these zones of influence around a designated sensitive habitat. Any buildings which cannot meet the permitted development criteria are required to submit planning applications for the maintenance and construction of agricultural buildings exceeding 500 sq. metres in size. In addition, developments below 500sqm may not be permitted if likely to cause an adverse impact.

## Emergence of DAERA proposals

There are proposals<sup>[1]</sup> for more stringent regulation of Ammonia emissions, with specific research and strategy documents that inform these proposals:

- DAERA has conducted research on how to reduce ammonia emissions across NI.
- DAERA has issued the Draft Ammonia Strategy consultation for Northern Ireland for which it is issuing an open *Call for Evidence on “Future Operational Protocol to Assess the Impacts of Air Pollution on the Natural Environment”*.

### DAERA proposals:

- As part of the Draft Ammonia Strategy consultation, DAERA proposes a target of a 30% ammonia emissions reduction across NI by 2030, with a 40% ammonia emissions reduction target for internationally designated sites.
- The new proposals set out increased restrictions on ammonia PCs from farms, which applies to any farm applying for a planning permission or an IPPC licence.
- The proposal would require additional paperwork and monitoring of ammonia emissions for farms that are applying for planning permission, within the 7.5 kilometre zone of influence of a designated sensitive habitat.
- The more stringent PC restrictions would more than double the number of applications requiring additional planning permission because of their ammonia PCs.

Further detail is provided on the next page.

Sources: [1] [DAERA, 2023, “Future Operational Protocol to Assess the Impacts of Air Pollution on the Environment](#)

# Overview of the DAERA proposals (2/2)

The share of planning applications that would exceed the Process Contribution limits would increase from 22% to 57% under the DAERA proposals.

Existing and proposed rules by area covered and share of planning applications affected <sup>[1]</sup>

|   | Existing  | Proposed  |
|---|---|---|
| <b>Ammonia Process contribution limit</b>   | 1%  | 0.1%  |
| <b>Area effected</b>  | 7.5 km within exclusion zones – this covers approx. 97% of landmass across Northern Ireland | 7.5 km within exclusion zones – this covers approx. 97% of landmass across Northern Ireland |
| <b>Share of Planning Applications Affected (based on 2012 – 2022 PC contribution figures)</b> | 22%   | 57%   |



The increase in Planning Applications affected could increase planning application approval times, when approval times are already exceeding 1 year (see slide 14).

## Key observations

**DAERA proposals include specific changes to the current regulatory planning framework**, especially in relation to the PCs, which would be reduced from 1% to 0.1%, encompassing most livestock-based agricultural processes within that 7.5km range:

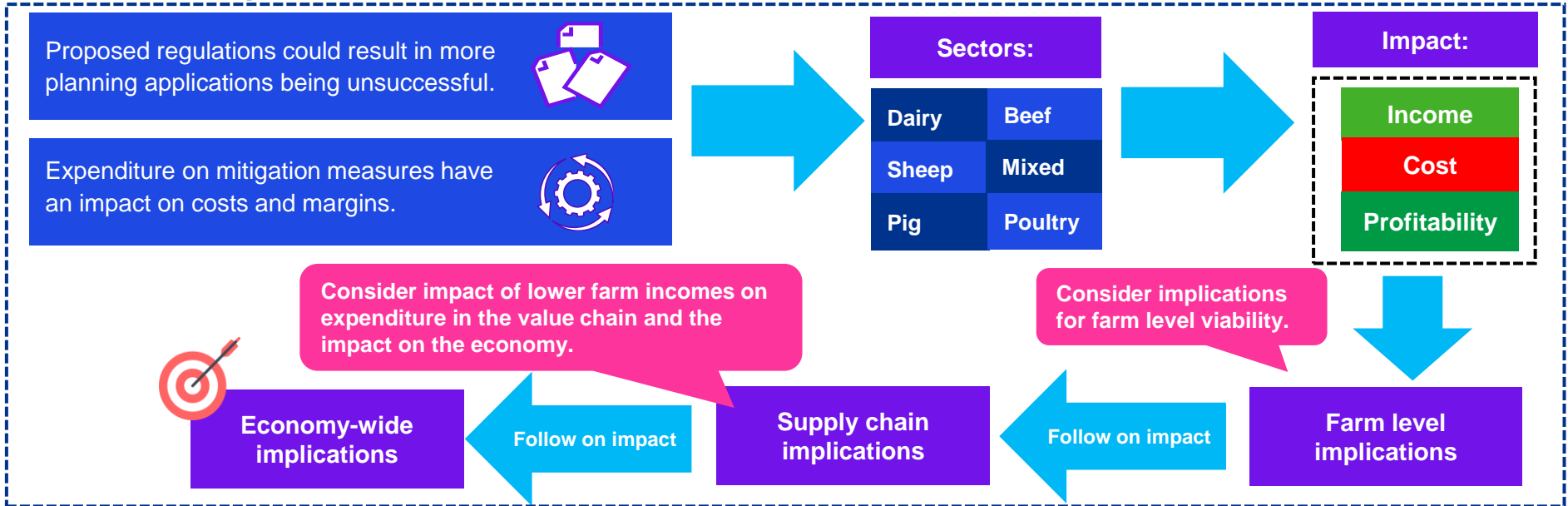
- This has an impact on the number of farms that are required to submit planning applications for the maintenance and construction of agricultural buildings.
- The number of applications with PCs between 0.1 – 1% generally increases with increasing distance. The number of applications with PCs greater than 1% generally decreases with increasing distance.
- The share of planning applications affected by the DAERA proposals would increase from 22% to 57% (a 35 pp increase). This means that 57% of planning applications received would be subject to greater ammonia monitoring and paperwork. Proposed regulations could also result in more planning applications being unsuccessful.
- Clarity on the additional planning requirements and additional support for farm applications is required.
- Measures to support ammonia reduction and ammonia process contributions from farms are required to:
  - 1) reduce ammonia emissions overall and,
  - 2) streamline planning requirements for farmers.
- There are a number of measures key to reducing ammonia emissions from farms, some of which require planning permission or variations to IPPC licences to build new housing and retrofit older builds e.g., improved slatted housing, increased scraping in housing, covers for slurry storage.

Sources: [1] [DAERA, 2023 p. 21 Future Operational Protocol to Assess the Impacts of Air Pollution on the Natural Environment](#)

# Potential impacts flow

The economic analysis considers the potential impacts of unsuccessful planning applications and the costs incurred to implement mitigation measures.

## Channels of impact



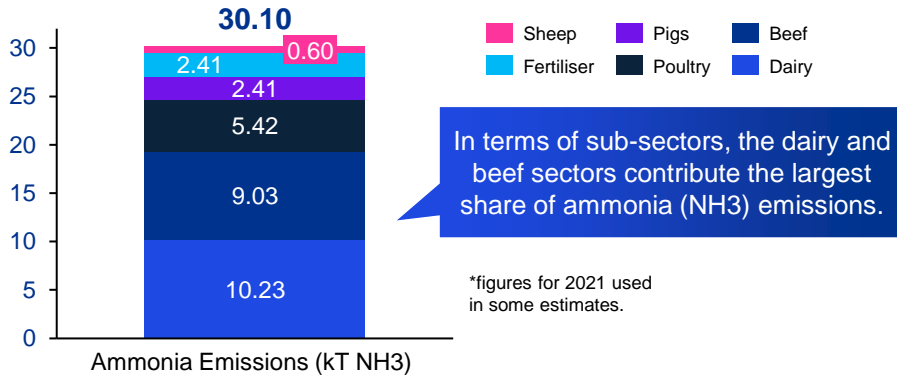
The economic analysis considers the potential impacts of unsuccessful planning application and the additional costs incurred for implementing mitigation measures:

- The **fall in income** as a result of unsuccessful planning applications could have a negative impact on farm viability and the wider economy.
- The **costs of implementing mitigation measures** have a negative impact on margins and farm level viability, while the expenditure can create positive impacts in the wider economy.
- **Economic impacts** are estimated in terms of multiplier impacts, considering an increase or decrease of expenditure on value chain inputs, giving rise to a multiplier impact (direct and indirect). Increased spending can increase economic output while reduced spending can reduce economic output.

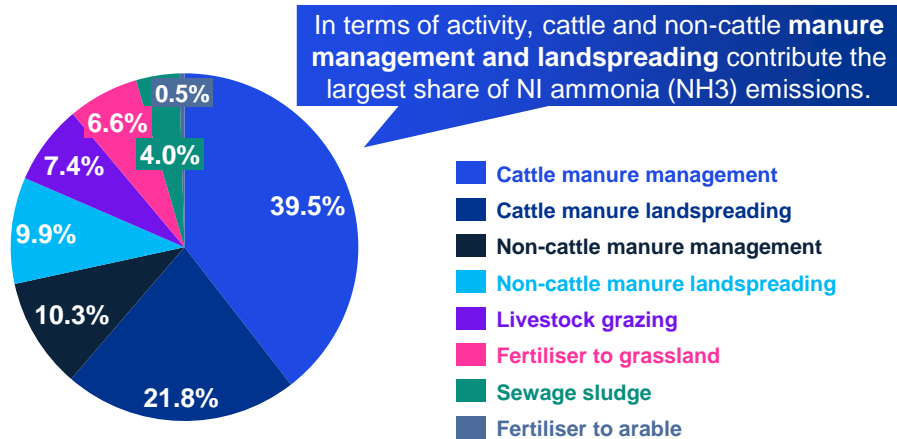
# Current ammonia emissions profile in NI

DAERA proposes that NI’s agricultural ammonia emissions be reduced by at least 30%, based on 2020 emission levels.

Ammonia emissions split by sector (2022, in kT NH3)<sup>[1]</sup>



Ammonia emissions split by source type (2020, % of kT NH3)<sup>[2]</sup>



## Key observations

- **Ammonia emissions:** NI currently generates 30.1 kilotons (kT) of NH3 (Ammonia). Most of these emissions come from the dairy and beef sectors, followed by poultry, fertiliser use, pigs, and sheep.
- **Sector source:** The Dairy (34%) and Beef sectors (30%) account for the largest shares of ammonia emissions, with grazing and manure management being the main drivers within those sectors.
- **Source type:** Cattle manure management (39.5%), followed by cattle manure landspreading (21.8%) account for the largest shares by source type, followed by non-cattle manure management (10.3%) and non-cattle manure landspreading (9.9%).
- **The DAERA proposals** set an ambition of a 30% emissions reduction target compared to 2020 emissions by 2030, equating to emissions of 21.8 kt of NH3 by 2030.
- **Emissions are falling:** Emissions from ammonia in Northern Ireland have fallen since 2005 (-4% compared to 2022 figures), despite increasing livestock numbers, due to efficiency improvements and reductions in emissions per head of livestock.
- **Additional reductions** 23% to 28% reductions are possible through specific mitigation measures, such as upgrades to animal housing, optimising crude protein in animal feed, improvements to slurry spreading and storage, ammonia binders and housing animals. Achieving the Department’s targeted 30% reduction would require a 100% uptake of mitigation measures across sectors (see [here](#)). This could come with a greater cost for the agriculture sector, impacting farm level viability.

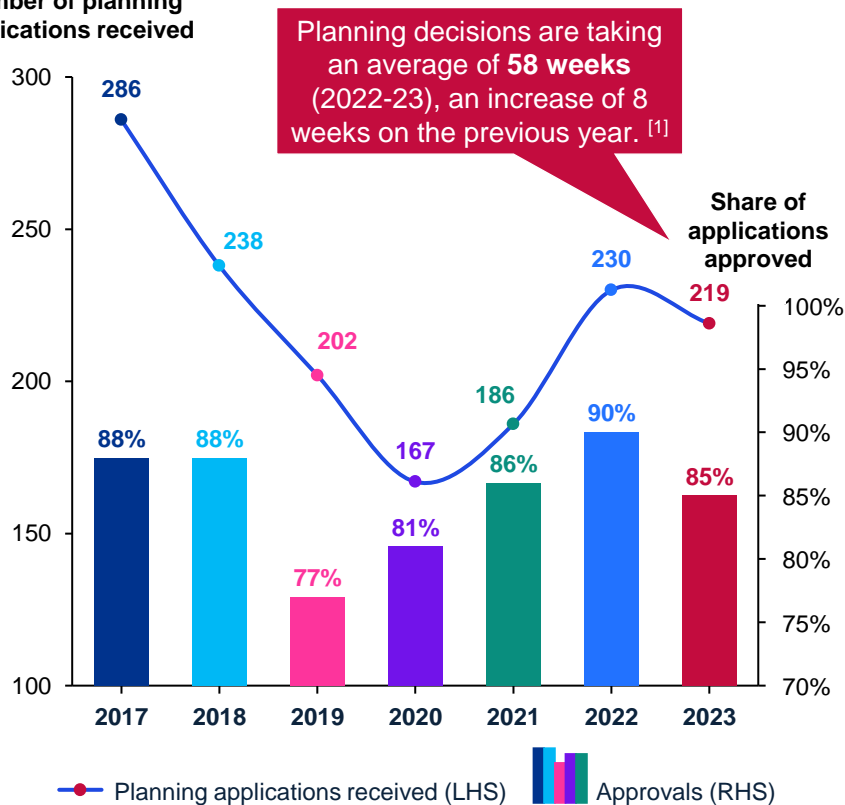
Sources: [1] Adapted from [Agri-food & Biosciences Institute \(AFBI\): 2021](#)  
 [2] Adapted from DAERA, [Ammonia emissions and agriculture | Department of Agriculture, Environment and Rural Affairs \(daera-ni.gov.uk\)](#)

# Recent planning trends (1/2)

Since 2017, the number of planning applications in the agriculture sector has fallen, while the approval rate has fluctuated. Approvals can take more than a year.

Number of planning applications and approvals  
(June 2017- June 2023)<sup>[a]</sup> <sup>[1]</sup>

Number of planning applications received



## Key observations

- Quantity and approval of applications:** Over the seven year period 2017-2022, Northern Ireland planning authorities received between 167 – 286 planning applications each year, with the lowest numbers observed in 2020 and 2021 due to reduced business activity during the COVID-19 pandemic, and increased activity following that, reaching 219 applications in 2023 (June).
- Recent data:** Between June 2022 and June 2023, Northern Ireland local authorities received 219 planning applications for agriculture related construction (both retrofitting and new builds) – this figure is a 23% decline compared to the previous peak of 286 planning applications received in 2017. In the period 2017-2023, there were clear variations in the volume of planning applications. The volume of planning applications could start to fall again if the proposed changes make the process of securing planning permission more difficult and costly, discouraging farmers from applying.
- Approval rates:** The approval rate for agriculture related planning applications for the year ending June 2023 was 85%, approval rates have fluctuated from a maximum of 90% in 2022 to as low as 77% in 2019.
- Approval time requirement:** The approval processing time increased by 8 weeks in 2022-2023 to 58 weeks, and every council in NI exceeded the 30 week target. <sup>[1]</sup>
- Overall implications:** As planning approvals times have increased in previous years (now taking more than 12 months typically), increased complexity of planning requirements with additional evaluations of these applications and of emissions could increase planning delays further.

Notes:

Sources:

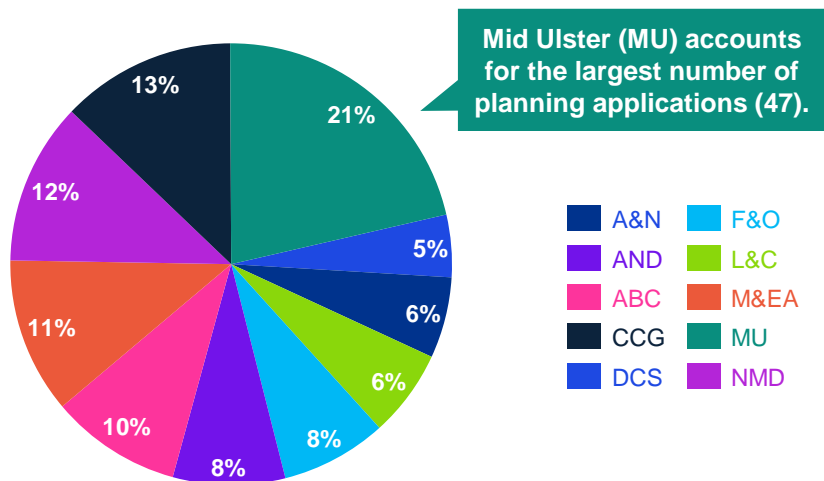
<sup>[a]</sup> The year statistics run from June – June of each year i.e., 2023 statistics cover information from June 2022 – June 2023.

<sup>[1]</sup> [Department for Infrastructure Planning Statistics, 2022 - 2023](#)

# Recent planning trends (2/2)

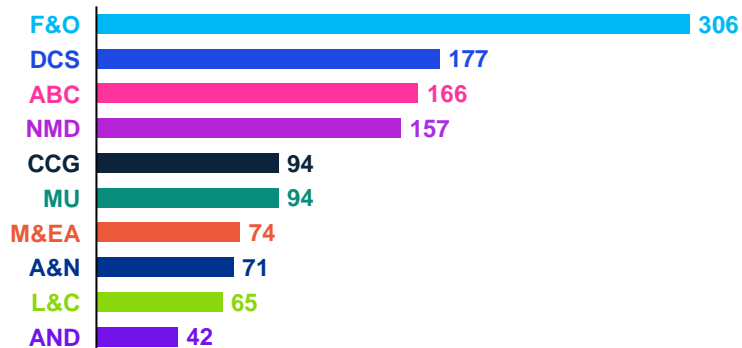
Planning applications are relatively broadly spread across NI, but specific geographic and/or sector-specific factors can drive greater complexity in some areas.

Share of planning applications, by local authority (2022)<sup>[a] [1]</sup>



Number of farms per planning application, by local authority (2022)

[a] [1]



Notes: [a] Belfast is excluded from the analysis due to no planning applications being received from this region – this district has 102 farms in its local region.

Sources: [1] Department for Infrastructure Planning Statistics, 2022 - 2023

[2] KPMG/DCNI Ammonia Survey of farmers in Northern Ireland. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations.

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## Key observations

### Geographic spread of applications in 2022 <sup>[a] [2]</sup>:

- Mid Ulster (MU) had the highest number (47) of applications, followed by Causeway Coast and Glens (CCG) (28), and Newry, Mourne & Down (NMD) (26). Derry City & Strabane had the lowest number of applications (10).
- Fermanagh and Omagh (F&O) had the lowest density of planning applications, with one application received per 306 farms. The density of planning was highest in Ards & North Down (AND), with one applications received per 46 farms.

### Recent trends and stakeholder feedback:

- Since 2017, the number of planning applications in the Agriculture sector has fallen, while the approval rate has fluctuated.
- Farmers and farm business representatives consulted as part of this study noted concerns around difficulties securing planning permission, and how this could be exacerbated by the new proposals. A specific concern is that an unsuccessful planning application would result in decreased income and a fall in investment (see Appendix 1). <sup>[2]</sup>

### Implications:

- Investments in farm infrastructure that require planning permission represent key mitigation measures that can reduce ammonia emissions. For example, retrofitting farm buildings, to include improved slurry storage and scrapers and slatted housing for manure management.
- A fall in planning applications could negatively impact the uptake of such mitigation measures (see more detail [here](#)).

# Ammonia mitigation measures (1/2)

While there are multiple potential ammonia-specific mitigation measures on the market, some are more feasible in an NI context than others.

Schedule of ammonia-specific mitigation measures <sup>[1]</sup> [a]

| Measures for 30% reduction in Ammonia Emissions              | NH3 reductions |
|--|----------------|
| Lowering crude protein                                       | 6.5%           |
| pH adjustment in field slurry                                | 0.5%           |
| Genetic improvement for pigs and poultry                     | 2.4%           |
| Extending grazing for cattle                                 | 3.3%           |
| Increased frequency of scraping                              | 0.9%           |
| Stabilised urea fertiliser                                   | 2.7%           |
| Trailing shoe slurry injection                               | 6.6%           |
| <b>23% reduction achieved with above measures</b>            |                |
| In-housing PH adjustment slurry                              | 2.7%           |
| In-housing slurry acidification                              | 0.5%           |
| Washing of hard stands, collecting yards                     | 0.3%           |
| Comfort slat mats Dairy                                      | 0.8%           |
| Comfort slat mats Beef                                       | 0.8%           |
| Fixed Covers for Slurry Stores                               | 0.1%           |
| <b>28% reduction achieved with above measures</b>            |                |
| Additional urea stabilised fertiliser                        | 0.7%           |
| Additional slat mats   | 0.2%           |
| Additional scraping upgrades                                 | 1.3%           |
| <b>30% reduction achieved with all of the above measures</b> |                |

## Key observations

Research by the Agri-Food and Biosciences Institute (AFBI) highlights a range of possible ammonia-specific mitigation measures for NI (summarised on the left). For all sub-sectors:

- Lowering crude protein diets can reduce annual ammonia emissions by 1.95 kT (6% reduction) of NH3 compared to current emissions levels, provided performance is not compromised.
- Other policy measures that contribute to NH3 emissions reductions include improving the structure of dairy cow collecting yards (0.3% reduction) and extending the grazing seasons by two weeks (3.3% reduction).
- Measures for ammonia reduction such as low emission livestock housing, facilities for improved slurry storage, and collecting yards may require building and infrastructure upgrades that need planning permission – ensuring the planning permissions is given in a timely manner is key to successfully implementing ammonia mitigation measures as soon as possible.
- Switching from splash plate slurry spreading to trailing shoe slurry injection could provide a 0.5% reduction. Trailing shoe slurry injection is selected over trailing hose for the improved functionality of trailing shoe over trailing hose measures. <sup>[b]</sup>
- These measures require additional equipment and, in the case of the improvements to buildings which cannot meet permitted development criteria, planning permission.

Notes:

<sup>[b]</sup> The uptake of trailing hose injection was not considered in this analysis. Only trailing shoe was accounted for as the preferred measure to avoid double counting of improvements to slurry spreading technology.

Notes:

[a] % figures are rounded.

Sources:

[1] [Agri-food & Biosciences Institute, 2023](#) [2] [Trailing shoe slurry injection, DAERA, 2020](#)



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# Ammonia mitigation measures (2/2)

Costs of mitigation measures vary by measure and by sector, with some farms having more/less scope to fund investment in these measures.

Cost of ammonia-specific mitigation measures<sup>[1]</sup>

| Measures for 30% reduction in Ammonia Emissions | Uptake rate | Total cost per annum £ |
|---|-------------|------------------------|
| Lowering crude protein                          | 75%         | 70,423                 |
| pH adjustment in field slurry                   | 10%         | 985,915                |
| Genetic improvement for pigs and poultry        | 75%         | -70,423                |
| Extending grazing for cattle                    | 100%        | -69,022                |
| Increased frequency of scraping                 | 75%         | 90,774                 |
| Stabilised urea fertiliser                      | 75%         | 581,366                |
| Trailing shoe slurry injection                  | 100%        | 3,580,000              |
| <b>Subtotal for 23% reduction</b>               |             | <b>~£5.2 million</b>   |
| pH adjustments for cows                         | 75%         | 11,690,141             |
| pH adjustments for pigs                         | 75%         | 2,253,521              |
| Washing of hard stands, collecting yards        | 75%         | 1,107,000              |
| Comfort slat mats Dairy                         | 25%         | 3,868,289              |
| Comfort slat mats Beef                          | 25%         | 16,339,417             |
| Fixed Covers for Slurry Stores                  | 100%        | 916,198                |
| <b>Subtotal for 28% reduction</b>               |             | <b>~£42.8 million</b>  |
| Additional urea stabilised fertiliser           | 100%        | 48,447                 |
| Additional slat mats                            | 100%        | 1,160,487              |
| Additional scraping upgrades                    | 100%        | 181,549                |
| <b>Subtotal for 30% reduction</b>               |             | <b>~£44.1 million</b>  |

Achieving a 30% reduction in ammonia emissions requires a 100% uptake of the currently available mitigation measures – the same measures assumed in the case of a 23% and 28% reduction.

Sources:  
Notes:

[1] Derived from findings from AFBI, Agri-Food and Biosciences Institute "The cost of tackling ammonia emissions".  
[a] Air scrubbers can be relatively expensive, requiring a significant capital investment. In practice, the significant investment required could make air scrubbers unaffordable for many farming businesses. [b] NIAC is the Northern Ireland Agricultural Census.

## Key observations

- Cost:** Rollout of ammonia mitigation measures at-scale across farming sub-sectors can reduce ammonia emissions by 30%. The cost of such mitigation measures is shown in order of increasing cost for all of NI. Measures for a 23% reduction in ammonia across all sectors would cost £5.2 million, achieving a 28% reduction would cost the sector £42.8 million, and a 30% reduction would cost the sector £44.1 million.
- Measures:** Air scrubbers <sup>[a]</sup> and fixed covers for slurry stores may form part of a larger retrofit for farms, which under new planning regulations may require additional planning permission for these improvements. It should be noted that the effectiveness of each measure can vary across sectors, for example, manure acidification by aluminium sulphate could reduce emissions in the poultry sector by over 70%.
- Sector cost per farm:** The cost for a typical farm per year, based on the NIAC <sup>[b]</sup> and cost information from DAERA, are included below. Beef farms have high costs due to a smaller average farm size, pig farms have high ammonia emissions per animal and thus costs are higher.

| Cost per farm (£) | 23% Reduction | 28% Reduction | Increase in cost from 23% to 28% reduction | 30% Reduction | Increase in cost from 28% to 30% reduction |
|-------------------|---------------|---------------|--|---------------|--|
| <b>Beef</b>       | 227           | 1,892         | 1,665                                      | 1,943         | 51   |
| <b>Pig</b>        | 2,569         | 17,675        | 15,106                                     | 17,675        | 0  |
| <b>Broilers</b>   | 229           | 1,740         | 1,511                                      | 1,776         | 37   |
| <b>Layers</b>     | 33            | 250           | 217  | 256           | 5  |
| <b>Sheep</b>      | 25            | 25            | 0  | 28            | 3  |

High Medium Low

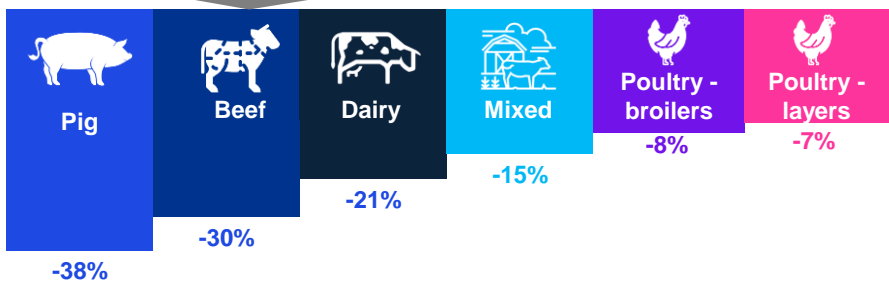
# Potential impacts of the proposals

# Planning application impacts

Under the DAERA proposals scenario, industry has indicated that there would be a fall-off in farm level activity and turnover if a farm/farm business cannot secure planning approval.

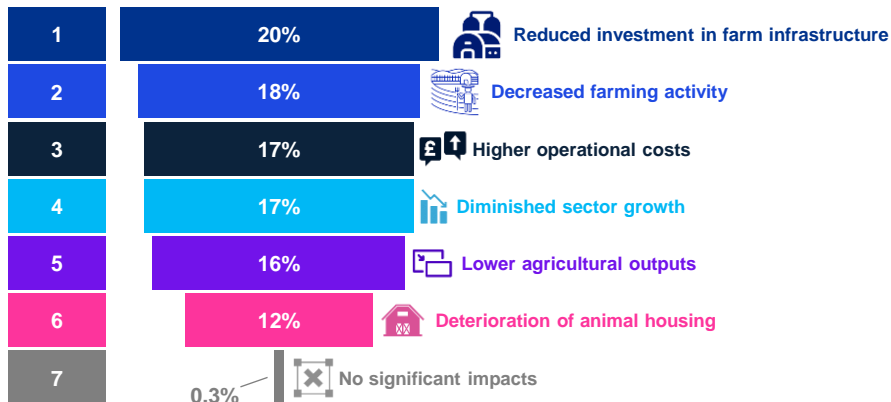
Potential percentage fall in income if planning permission is not secured, by primary sector <sup>[1]</sup>

Based on consultation with industry, the projected fall in income if planning permission is not secured would be in the range 19%-26%.



## Ranking of projected negative impacts from proposal(s) <sup>[1]</sup>

Share of respondents across all sectors <sup>[a]</sup>



**Notes:**

[a] Ranking of projected negative impacts from proposals is an average across all sectors and this varies between sub-sectors [b] Stakeholder perspectives are from Causeway Coast and Glens (CCG), Mid Ulster (MU), and Newry, Mourne and Down (NMD).

**Sources:**

[1] KPMG/DCNI Ammonia Survey of farmers in Northern Ireland. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations.

## Key observations

- Sub-sector variations exist:** While falls in income can be expected in all sub-sectors, primary research undertaken as part of this study indicates that the fall in income arising from the proposals would be greatest in the pig sector (-30%), while the smallest fall would be in the poultry layers sector (-7%).
- Reduced investment is a concern:** Consultees engaged during this study noted that reduced investment in farm infrastructure is the most likely negative impact arising from the new proposals (20% of respondents). Consultees ranked the likelihood of other negative impacts similarly (ranked 2-6 in the table), highlighting the challenge in forecasting potential negative impacts specifically.
- Mitigation measures may be delayed:** Reduced investment in infrastructure could mean that ammonia mitigation measures such as implementing improved scrapers and slat mats in livestock sheds, and having covers for slurry pits could be delayed further, and prevent efforts to reduce ammonia emissions from agriculture.

## Selected consultee and survey perspectives <sup>[1] [b]</sup>

“It will lead to negative implications for agricultural, construction and engineering sectors.” - Dairy Farmer, CCG

“Inability to get planning permission approved will lead to my farm having a worse impact on the environment and climate change” - Dairy Farmer, MU

“Unsuccessful planning permission will make it difficult for farm succession to the next generation of farmers in Northern Ireland” - Beef Farmer, NMD

“It will leave Northern Ireland vulnerable to cheap imports.” - Beef Farmer, NMD

# Cost of implementing measures

On a farm level, reducing ammonia emissions by 23%-30% could cost farms between 0.1% and 22% of their respective farm incomes, depending on sector and level of mitigation.

Average income by sector and mitigation measures as a share of that income <sup>[a]</sup> <sup>[b]</sup> <sup>[1]</sup>

| Sector   | Average Income <sup>[1]</sup> | Ammonia Mitigation Costs as a % of Income |               |               |
|----------|-------------------------------|---|---------------|---------------|
|          |                               | 23% reduction                             | 28% reduction | 30% reduction |
| Dairy    | 83,200                        | 2%  | 9%            | 9%            |
| Beef     | 24,000                        | 1%  | 7%            | 7%            |
| Broilers | 175,000                       | 0%  | 1%            | 1%            |
| Layers   | 37,900                        | 0%  | 1%            | 1%            |
| Pig      | 85,000                        | 4%  | 22%           | 22%           |
| Sheep    | 24,000                        | 0%  | 0.1%          | 0.1%          |

Annual cost per animal (kg carcass weight) based on the NIAC and cost information from DAERA <sup>[a]</sup> <sup>[1]</sup>

| Sector  | 23% Ammonia Reduction | 28% Ammonia Reduction | 30% Ammonia Reduction |
|---------|-----------------------|-----------------------|-----------------------|
| Dairy   | £0.05                 | £0.24                 | £0.25                 |
| Beef    | £0.03                 | £0.27                 | £0.27                 |
| Pig     | £0.02                 | £0.11                 | £0.11                 |
| Poultry | £0.02                 | £0.01                 | £0.01                 |
| Sheep   | £0.000                | £0.007                | £0.007                |

■ High ■ Medium ■ Low

Notes: <sup>[a]</sup> DAERA's proposals for reductions in emissions are based on top-down ammonia emissions reductions costings and estimates, and are not representative of the additional localised costs and conditions farmers may face as a result of increasing ammonia pollution management measures. <sup>[b]</sup> The average income used for the respective beef and sheep sector calculations is that of an average sheep and beef farm. Sources: <sup>[1]</sup> Based on estimates derived from DAERA Farm Income Report 2021/2022.

## Key observations

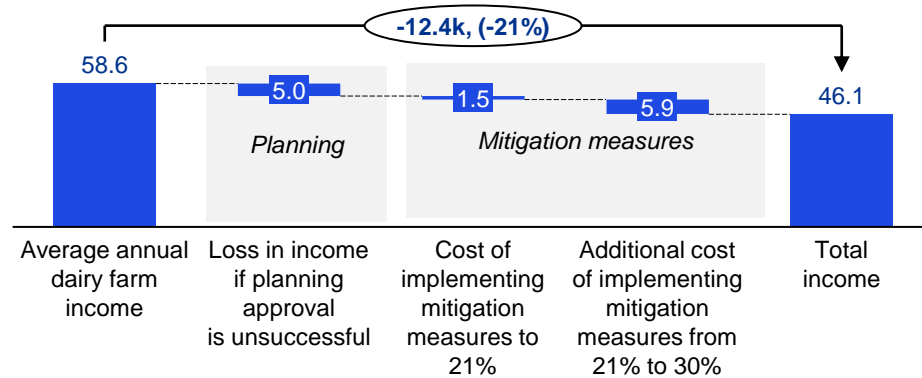
- **Farms** would be required to implement many of these measures to reduce ammonia emissions in general, regardless of whether they are in the 57% cohort that would be affected by the greater restrictions on Ammonia Process Contributions. The beef sector would have to invest 7% of its total income in ammonia reduction measures to achieve the 30% reduction. This is a significant investment cost for farmers based on the measures outlined in the previous section.
- **The costs per animal** for the dairy, beef and pig sector are the highest compared to other livestock, with costs of £0.11 – £0.27 per kg (carcass weight). Such reductions in income, have a significant impact on farms with tight profit margins and could further erode the feasibility.
- **The cost of implementing measures** in the pig, beef, and dairy sectors are relatively higher than sheep and poultry sectors. This is mostly due to the costs of comfort slat mats and in house pH adjusted slurry, hence the high mitigation costs as a percentage of income (22% for pigs, 7% for beef, and 9% for dairy).

# Farm level viability (1/3)

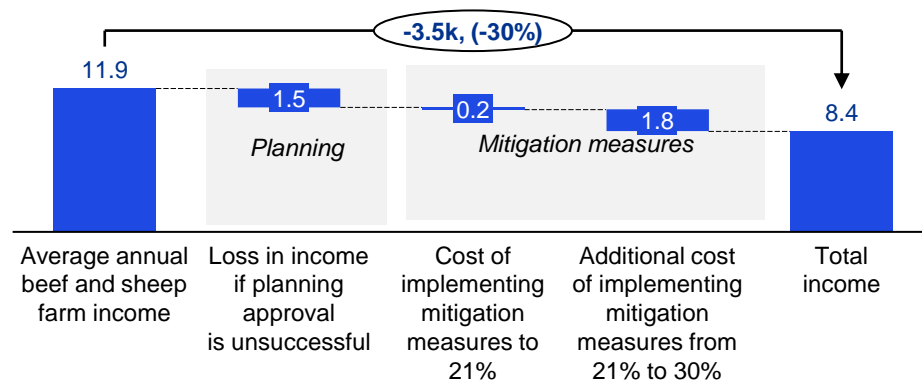
The cost of implementing mitigation measures can be a constraint that limits the uptake by farmers, especially for beef and sheep farmers.

Under DAERA proposals, on a farm level, income could fall by ~21% for a dairy farm and ~30% for a beef farm.<sup>[a]</sup>

Potential impact on dairy farm income under the DAERA proposals scenario, 2021/2022, £'000 <sup>[1]</sup>



Potential impact on beef/sheep farm income under the DAERA proposals scenario, 2021/2022, £'000



## Key observations

Our analysis considers the potential fall in farm level income across sectors and farm sizes. Survey responses were used to inform the estimated fall in income for an average farm, resulting from an unsuccessful planning application and the additional costs incurred for implementing mitigation measures:

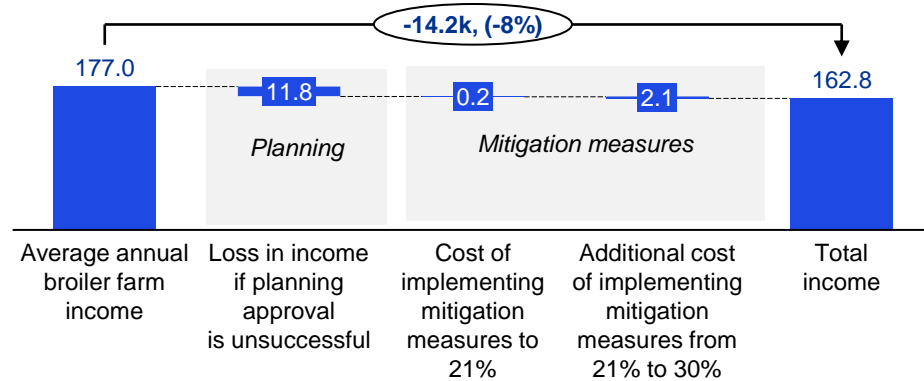
- Dairy:** The average dairy farm (~93 dairy cows) could see a decrease in annual income of £12.4K (-21%) which is made up of a £5k (-9%) reduction in income if planning approval is unsuccessful, while the additional cost of up to £7.4k required to implement mitigation measures translate into a 13% fall in income.
- Beef and sheep:** The average beef and sheep farm (~70 cattle) <sup>[b]</sup> could see a decrease in annual income of £3.5K (-30%) which is made up of a £1.5k (-13%) reduction in income if planning approval is unsuccessful, while the additional cost of up to £1.7k required to implement mitigation measures translate into a 14% fall in income.
- Additional considerations:**
  - Mitigation measures include a once off capital investment and an ongoing annual operational cost element. The annual “operational” costs have been considered in the analysis on the left.
  - Once off cost for a planning consent application can range between £5K and £20k for dairy, beef and sheep farms. However it can be higher, depending on the unique characteristics and scale of the application.
- Increased ammonia restrictions** could impact farm level incomes and viability by making planning applications more stringent, where unsuccessful applications and the cost of mitigation measures could **reduce income on a dairy farm by ~21% and ~30% for a beef farm.**

**Notes:**  
 [a] Note this is the combined impact of planning applications being unsuccessful and the additional costs of implementing mitigation measures.  
 [b] 70 cattle average for average beef farm which comprises of 25 beef cows and 45 other cattle.  
 [1] DAERA and KPMG analysis

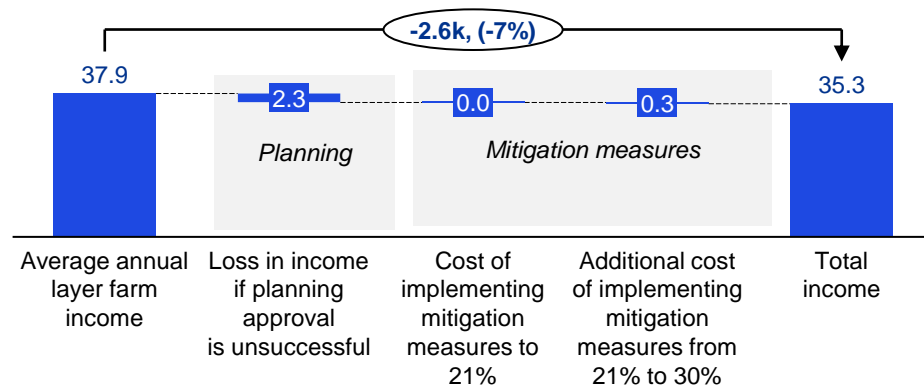
# Farm level viability (2/3)

Under DAERA proposals, on a farm level, income for poultry farmers could fall by ~8% for broiler farm and ~7% for layer farm.<sup>[a]</sup>

Potential impact on poultry - broiler farm income under the DAERA proposals scenario, 2021/2022, £'000<sup>[1]</sup>



Potential impact on poultry – layer farm income under the DAERA proposals scenario, 2021/2022, £'000



Notes: [a] Note this is the combined impact of planning applications being unsuccessful and the additional costs of implementing mitigation measures.  
Sources: [1] DAERA and KPMG analysis

## Key observations

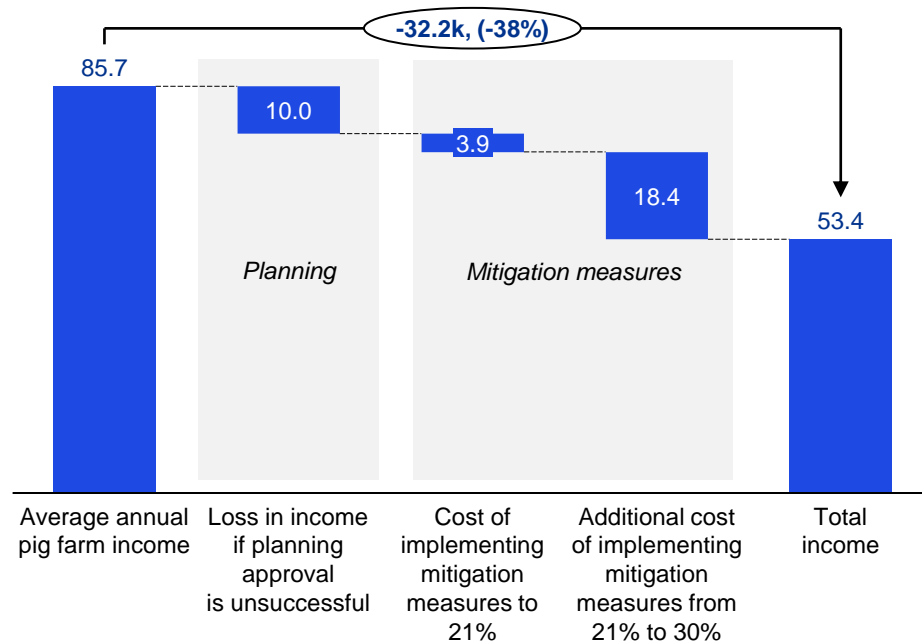
Our analysis considers the potential fall in farm level income across sectors and farm sizes. Survey responses were used to inform the estimated fall in income for an average farm, resulting from an unsuccessful planning application and the additional costs incurred for implementing mitigation measures:

- Poultry - broilers:** The average poultry broiler farm (~70,000 birds) could see a decrease in annual income of £14.2K (-8%) which is made up of a £11.8k (-7%) reduction in income if planning approval is unsuccessful, while the additional cost of up to £2.3k required to implement mitigation measures translates into a 1% fall in income.
- Poultry – layers :** The average poultry egg layer farm (~10,000 birds) could see a decrease in annual income of £2.6K (-7%) which is made up of a £2.3k (-6%) reduction in income if planning approval is unsuccessful, while the additional cost of up to £0.3k required to implement mitigation measures translates into a 1% fall in income.
- Additional considerations:**
  - Mitigation measures include a once off capital investment and an ongoing annual operational cost element. The annual “operational” costs have been considered in the analysis on the left.
  - Once off cost for a planning consent application can range between £5K and £30k for poultry farms. However it can be higher, depending on the unique characteristics and scale of the application.
- Increased ammonia restrictions** could impact farm level incomes and viability by making planning applications more stringent, where unsuccessful applications and the cost of mitigation measures could **reduce income: ~8% for broiler and ~7% for layer farm.**

# Farm level viability (3/3)

Under DAERA proposals, on a farm level, income could fall by ~38% for a pig farm.<sup>[a]</sup>

Potential impact on pig farm income under the DAERA proposals scenario, 2020/2021, £'000<sup>[1]</sup>



## Key observations

Our analysis considers the potential fall in farm level income across sectors and farm sizes. Survey responses were used to inform the estimated fall in income for an average farm, resulting from an unsuccessful planning application and the additional costs incurred for implementing mitigation measures:

- **Pigs:** The average pig farm (~138 sows/gilts) could see a decrease in annual income of £32.2K (-38%) which is made up of a £10k (-7%) reduction in income if planning approval is unsuccessful, while the additional cost of up to £22.3k required to implement mitigation measures translates into a 26% fall in income.
- **Additional considerations:**
  - Mitigation measures include a once off capital investment and an ongoing annual operational cost element. The annual “operational” costs have been considered in the analysis on the left.
  - Once off cost for a planning consent application can range between £5K and £30k for pig farms. However it can be higher, depending on the unique characteristics and scale of the application.
- **Increased ammonia restrictions** could impact farm level incomes and viability by making planning applications more stringent, where unsuccessful applications and the cost of mitigation measures could **reduce income for a pig farm by ~38%**

**Notes:**

[a] Note this is the combined impact of planning applications being unsuccessful and the additional costs of implementing mitigation measures. For comparability, 2020/21 pig farm income was used in the analysis, to account for the significant price increases the sector experienced in 2022.

**Sources:**

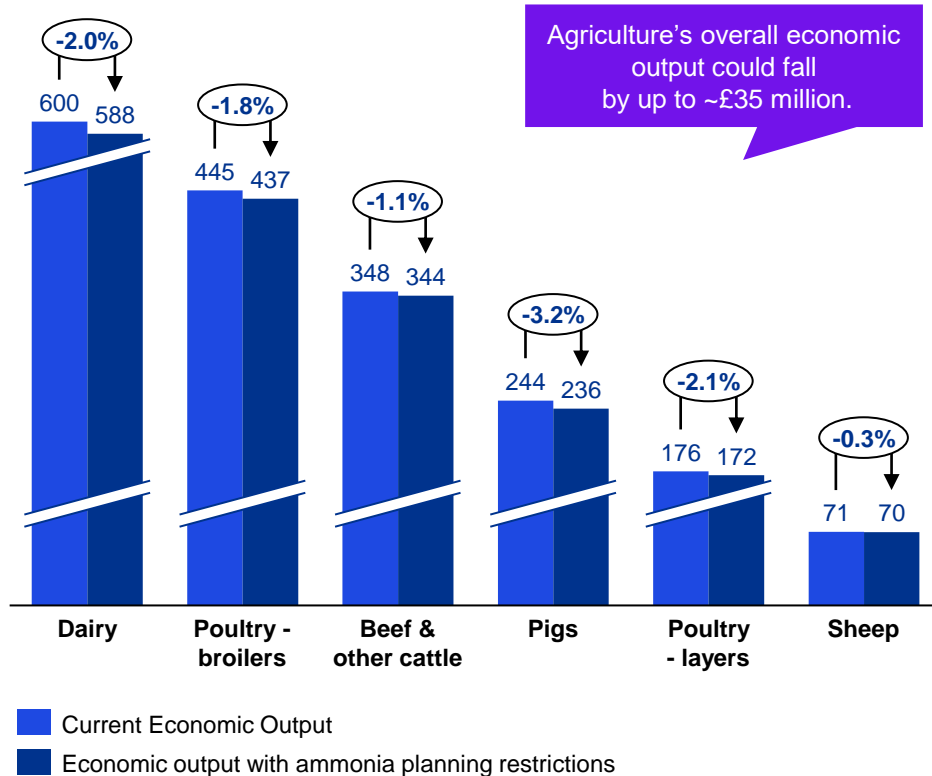
[1] DAERA and KPMG analysis



# Sector economic output – baseline and scenario context

Under the DAERA proposals, economic output could fall in most sectors, but this may be most significant in the pig sector (-3.2%).

Direct and indirect economic output by sector, £m



## Key observations

The proposed ammonia regulations could result in planning applications becoming more stringent and therefore, in more applications being unsuccessful. Unsuccessful planning applications can give rise to a fall in income that reduces each sub-sector's level of economic output:

- Under the DAERA proposals, industry has indicated that there would be a fall-off in farm level activity and turnover if a farm/farm business cannot secure planning approval.
- Such constraints could impact farm level expenditure, reducing expenditure on inputs in the agricultural supply chain and with that reduce the flow on economic impact of supply chain expenditure (direct and indirect impact).
- Economic output falls the most in the pig sector, declining by 3.2%, followed by the dairy sector (declining by 2.0%).
- Economic output for poultry (layer) falls by 2.1%, poultry (broilers) falls by 1.8%, and by 1.1% for beef and other cattle. The sheep sector has a relatively smaller decline of 0.3%.
- Additional considerations:**
  - With unsuccessful planning applications, there could be a knock-on impact on the construction sector, especially construction businesses in the rural economy and for the local input suppliers of these businesses. Agriculture's spend on construction can be approximated<sup>[a]</sup> at £60 - £70 million (2022).
  - Based on industry feedback, unsuccessful planning applications could lead to a fall in farm infrastructure investment of between 20% and 25%.

Sources:

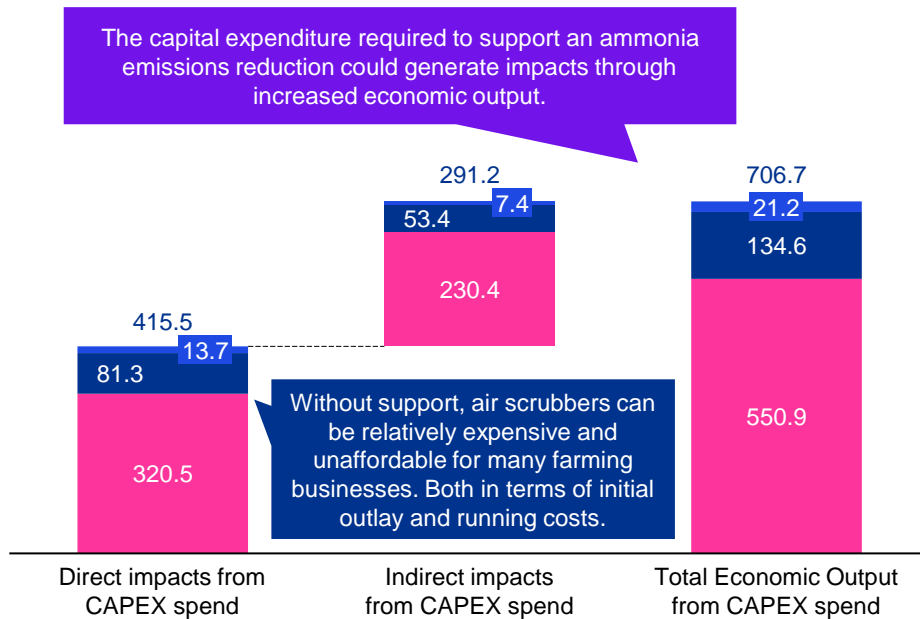
[a] Based on estimates considering Total Income from Farming (TIFF) and the Agri-Food Loan Scheme. This is an approximate value and actual spending may be higher or lower.  
 [1] KPMG/DCNI Ammonia Survey of farmers in Northern Ireland. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations



# Mitigation measures: CAPEX context

Investment in mitigation measures could generate positive spillovers for the NI economy, however, the level of CAPEX required would necessitate some level of public funding.

Illustrative capital investment and potential multipliers from mitigation measures, £m (across three measures)



## Key observations

The **capital cost** of implementing mitigation measures hold two dimensions:

1. An **additional cost for farmers** that curtails margins (negative impact), as illustrated in the farm level analysis.
2. An **impact on the wider economy** as a result of the additional expenditure that takes place.

**Capital expenditure** to reduce ammonia emissions<sup>[a]</sup> will flow through the economy, creating direct and indirect impacts, to the value of a **£707 million** addition to economic output:

- However, these expenditures come at a cost to farmers and the profitability of their farming operations. Note that in addition to capital expenditure, there will also be annual operational expenditure required for mitigation measures.
- Spending on mitigation measures enable a reduction in emissions while providing an increase in economic output from the industries supplying the inputs needed to implement the mitigation measures.
- Considering the **level of capex required**, some level of **public funding and support** will be needed.

## Selected consultee and survey perspectives <sup>[1] [b]</sup>

“Proposals will bring significant costs to the industry with no guarantee of being successful with applications for farm buildings that will allow the business to grow.” - Dairy Farmer, FO

“There are 90% reductions for methane mitigation by feeding additives, but the government needs to support the additional costs” – Beef Farmer, MU

- Fixed Covers for Slurry Stores
- Air scrubbers in housing for pigs and poultry
- Comfort Slat Mats in housing

Three mitigation measures with a capital investment component.

**Notes:**  
 [a] The direct capital investment for mitigation measures was calculated based on the per annum cost and the estimated useful life of such assets.  
 [b] Stakeholder perspectives are from Fermanagh and Omagh (FO) and Mid Ulster (MU).  
 [1] KPMG/DCNI Ammonia Survey of farmers in Northern Ireland. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations

# Opportunity cost of curtailed investment

Opportunity costs will arise in cases where farmers cannot secure permission to build a facility or where mitigation measures are not implemented.

Opportunities with time efficient, well-managed, and practical planning permission processes for ammonia reduction include:



**Timely implementation** of ammonia preventative infrastructure on farms such as automated scrapers in livestock sheds, upgraded slurry management systems, and storage areas for low ammonia slurry spreading equipment.



**Lower operational costs**, providing additional capability to invest in low-ammonia infrastructure such as slurry spreading equipment upgrades, stabilised urea fertiliser, and slat mats.



**Newer, up-to-date infrastructure** with enhanced facilities for animal welfare, slurry management, and enhanced productivity for farmers – bringing social and economic gains to local farming communities, **making sustainability work** for farmers and for the local community.

## Key observations on opportunity costs

- As noted from the DCNI's Survey of Farmers in Northern Ireland, reduced investment in farm infrastructure was the highest ranked negative impact arising from the proposals.
- Adding restrictions on farm building planning permissions could potentially reduce the number of farm building retrofits and construction activity towards enhancing ammonia prevention infrastructure such as:
  - Slat mats and automated scrapers to manage livestock manure in housing;
  - Underground and covered slurry storage to reduce volatile ammonia emissions;
  - Hardstands and accessways for washing down farm areas;
  - Facilities for storing trailing shoe slurry spreading equipment.

Curtailed investment in new infrastructure for farming slows down the transition to low ammonia farming.

## Selected stakeholder perspectives<sup>[1]</sup> [a]

"Planning rules are **slowing down the reduction of ammonia by impeding us from building new sheds and replacing old ones**" - Beef Farmer, AND

"If planning was to change, I would be more than likely **unable to build the facilities I need to remain environmentally friendly**" - Dairy Farmer, DCS

**Notes:**

[a] Stakeholder perspectives are from Ards and North Down (AND) and Derry City and Strabane (DCS).

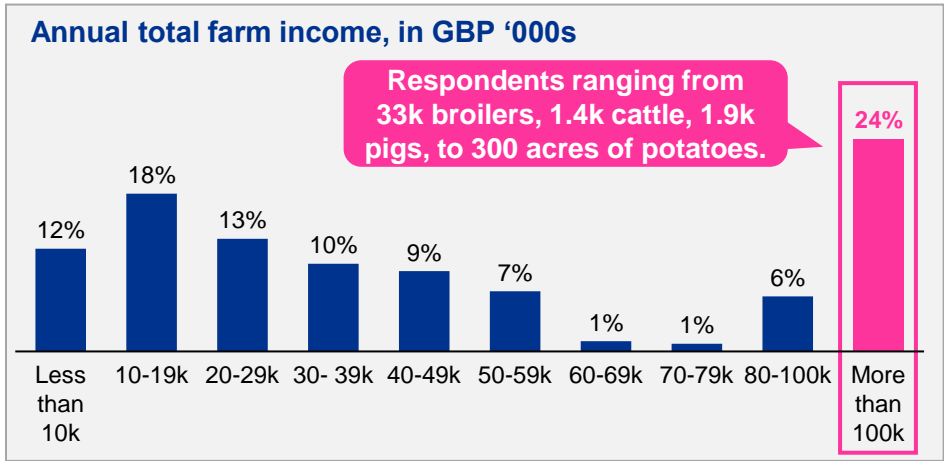
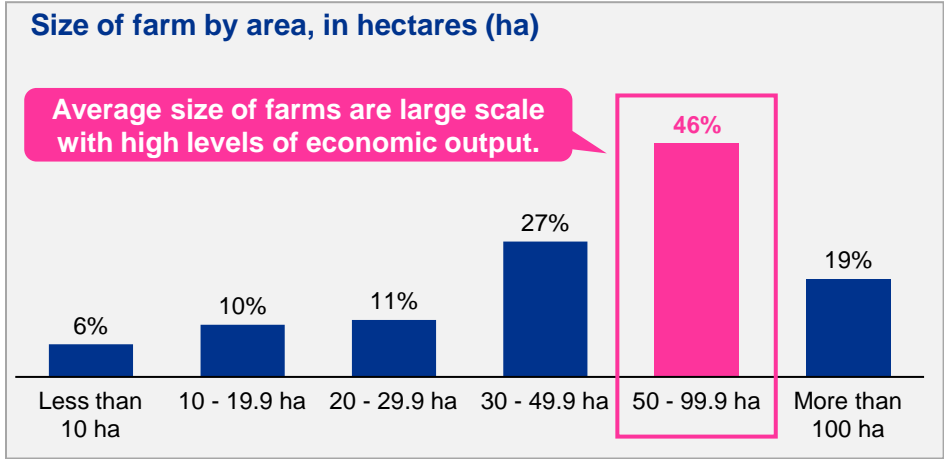
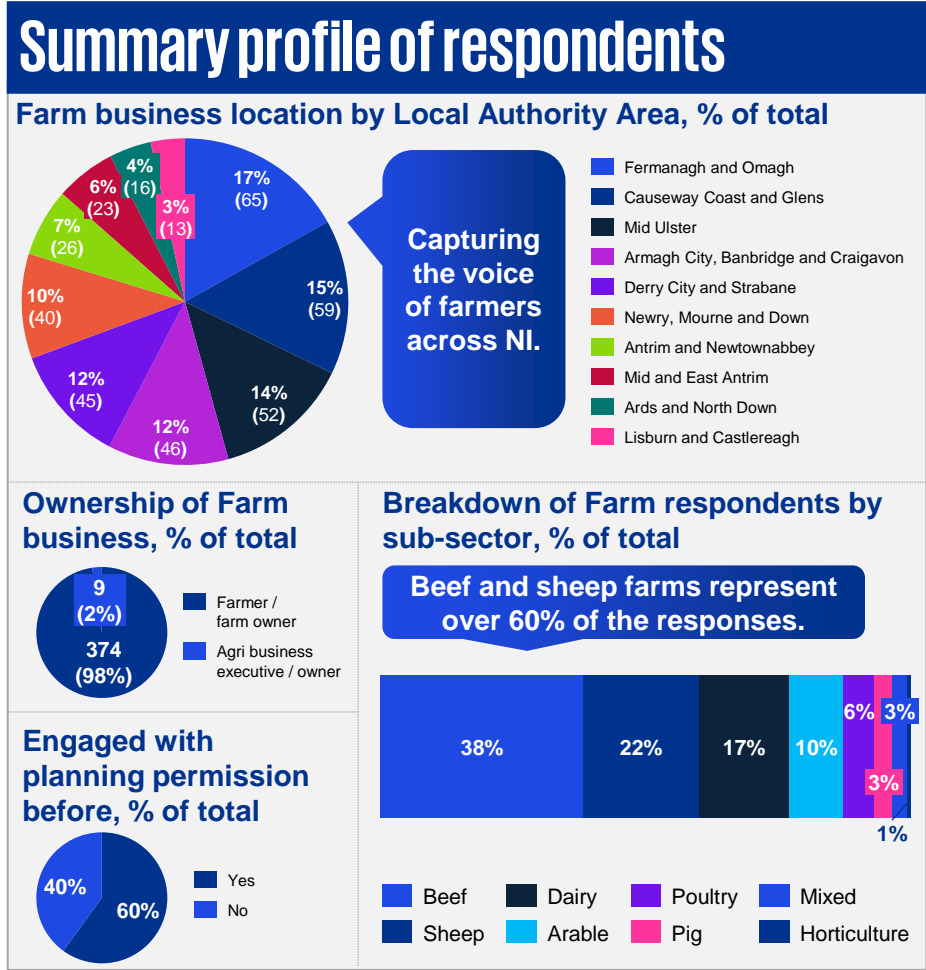
**Sources:**

[1] KPMG/DCNI Ammonia Survey of farmers in Northern Ireland. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations

# **Appendix 1: Primary research**

# Survey findings

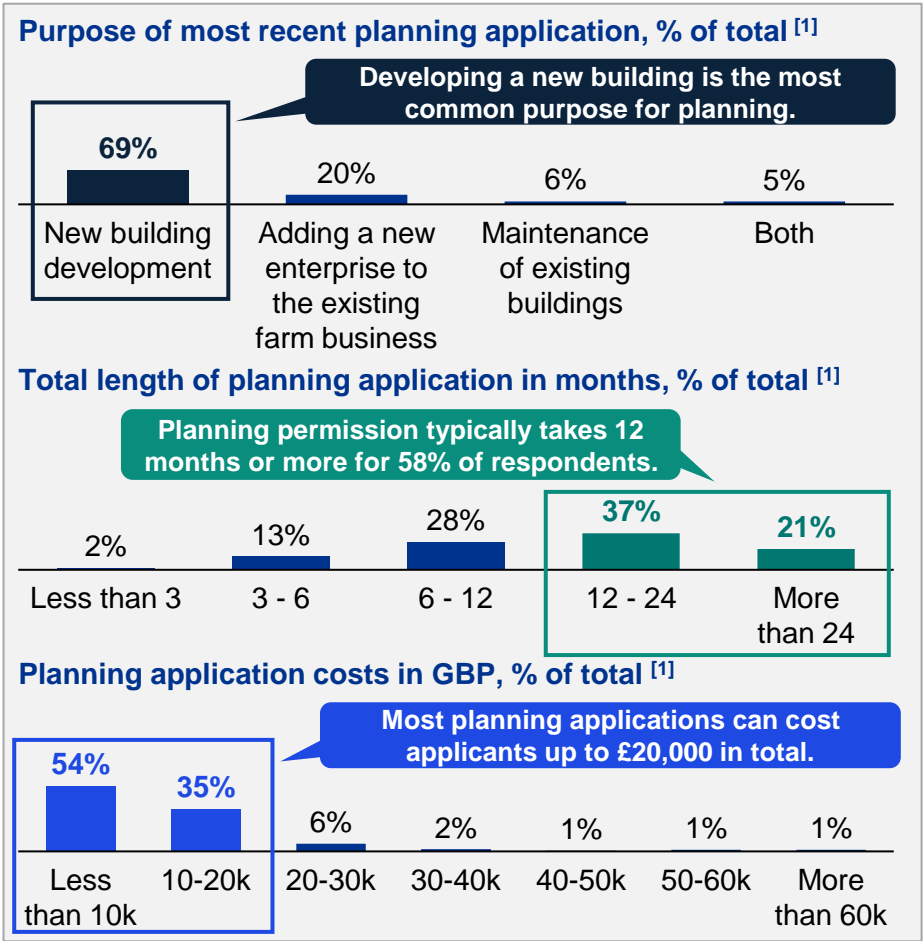
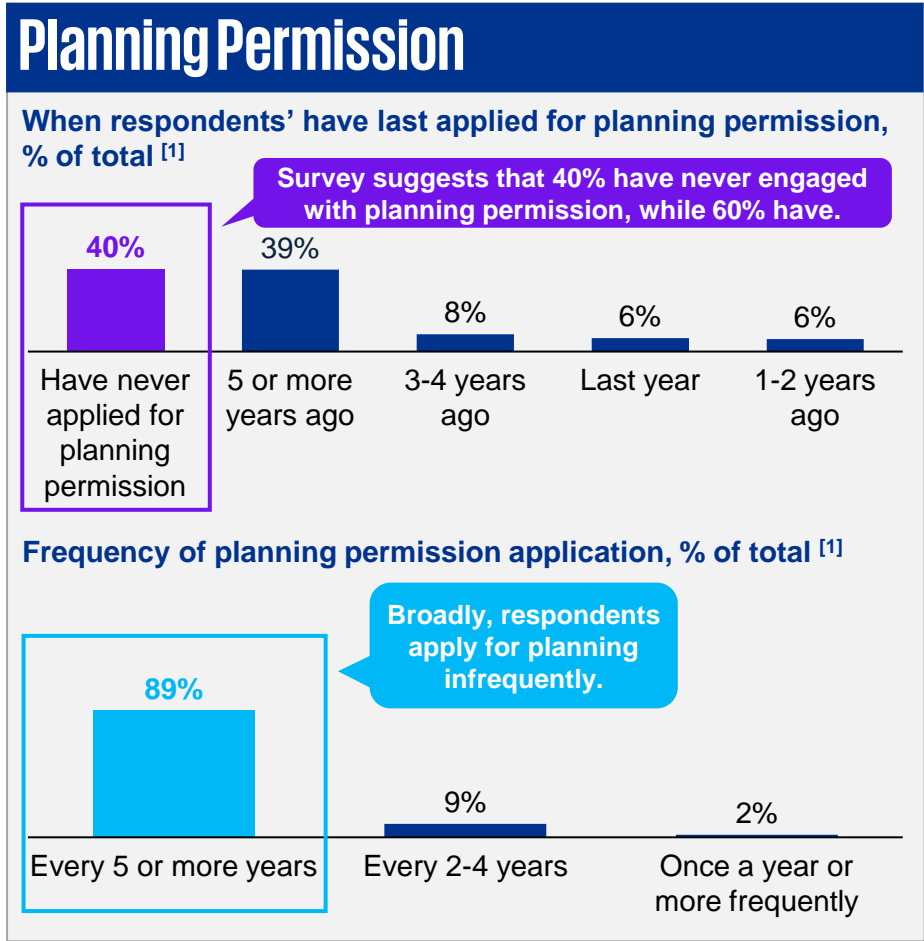
Our industry survey consulted NI's farming sector, with input received from all sectors, including different income levels, and farm sizes.



Sources: [1] KPMG/DCNI Ammonia proposals industry Survey. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations

# Survey findings

60% of respondents have applied for planning permission. Most of that cohort apply every five or more years mainly for new building developments.



Sources: [1] KPMG/DCNI Ammonia proposals industry Survey. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations

# Survey findings

Slurry spreading techniques and manure storage are seen as the most feasible mitigation options; the most efficient options still carry a heavy financial burden.

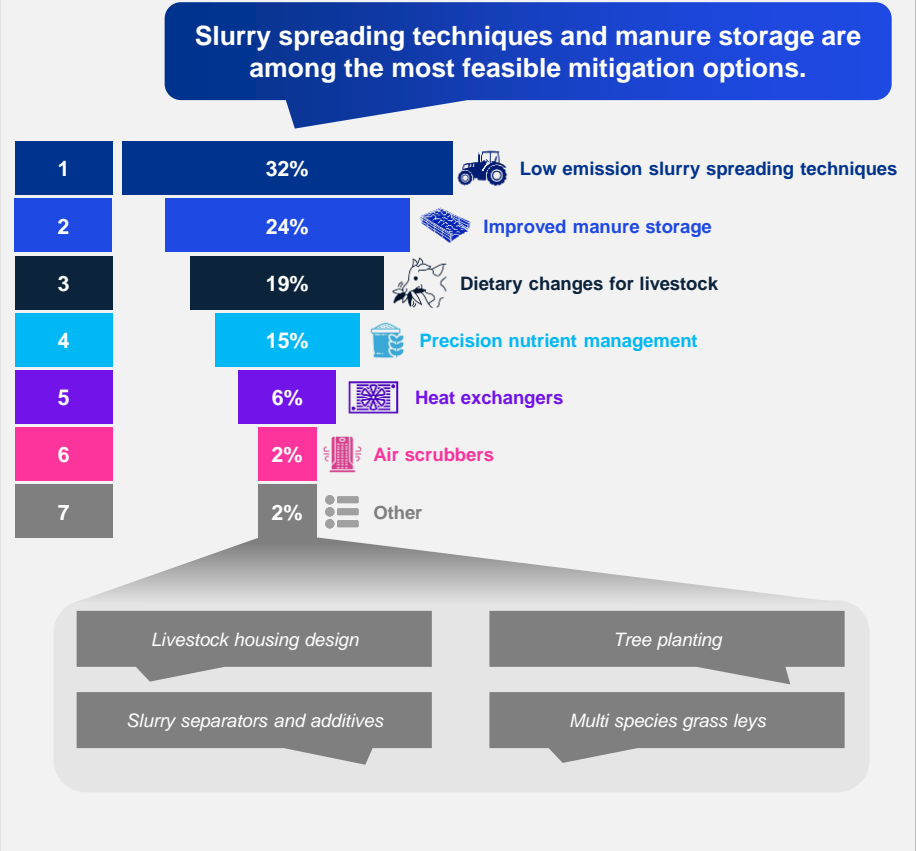
## Ammonia mitigation

Ammonia mitigation options currently implemented and associated costs among respondents <sup>[1]</sup>



## Ranking of mitigation options feasibility among respondents <sup>[1]</sup>

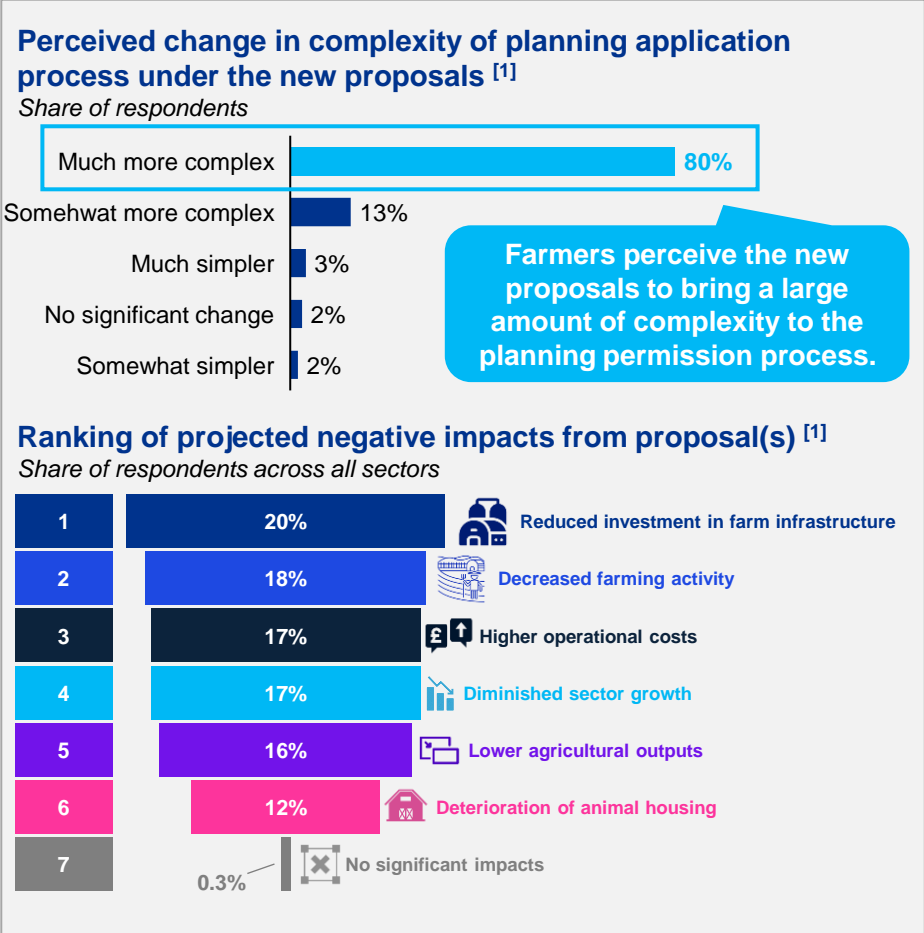
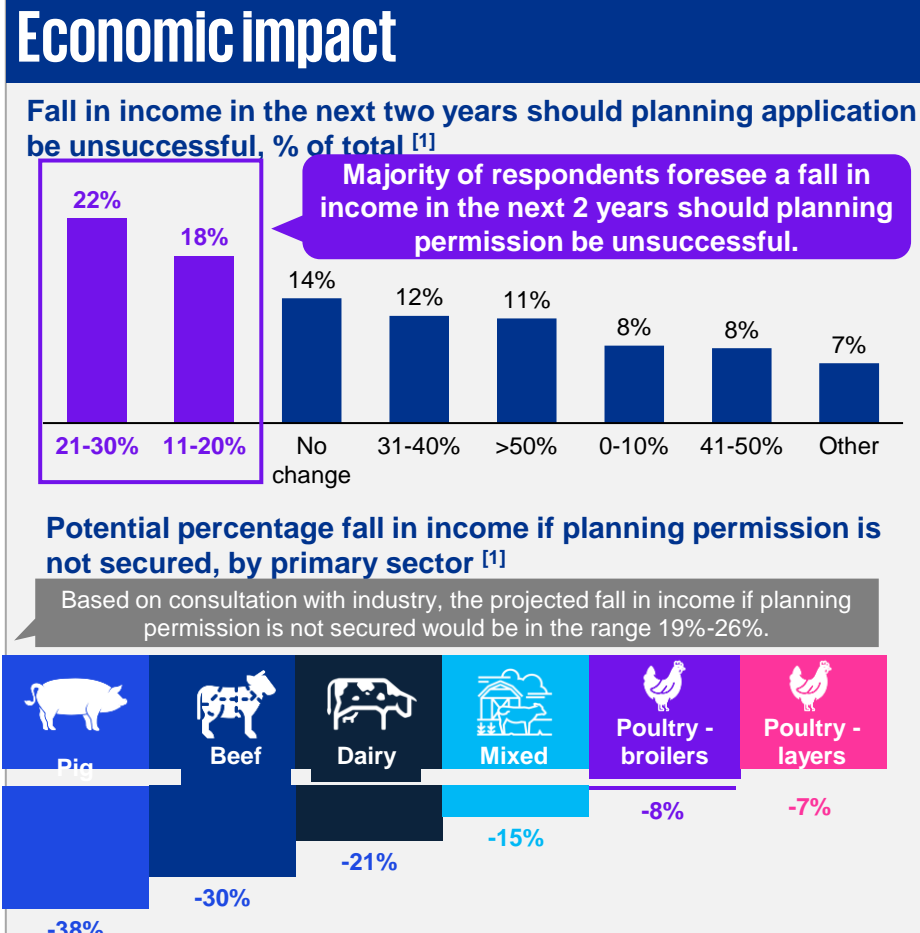
Share of respondents



Sources: <sup>[1]</sup> KPMG/DCNI Ammonia proposals industry Survey. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations

# Survey findings

Increased complexity of application along with reduced investment and decreased farming activity are among the projected impacts of the proposals.



Sources: [1] KPMG/DCNI Ammonia proposals industry Survey. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations

# Insights from primary research

| Scenario |           |                |       |
|----------|-----------|----------------|-------|
| Time     | Frequency | Future outlook | Costs |

Respondents were asked to give their opinion on timelines, frequency, the future outlook and associated costs.

## Selected industry perspectives <sup>[1]</sup> <sup>[2]</sup>

The DAERA proposals will severely impede my ability to generate a profit and to meet my loan repayments that was drawn out during the 2020 'Going for Growth' strategy.

New manure shed costing £50k.

Agriculture sector is a large consumer of the construction sector supplying ready mix concrete, precast, and aggregate to farmers however, the proposals could change this demand.

The tanker and dribble bar cost me £35k.

High velocity roof fans cost me approximately £40k.

The current situation is forcing farmers to carry out building projects without planning permission which is arguably worst for the environment.

Twice every five years I construct buildings which do not require permission.

I construct buildings requiring no planning permission every ten years.

We have been trying to obtain an IPPC permit for nearly two years and it has been costly, time consuming and gave us stress and worries.

Air modelling nitrate assessment at £4.5k.

New slurry tanks costing £30k.

The intensification of farming in NI is a root contributor to the problem. More intensive practices like poultry and pig farming is where high ammonia levels arise.

Any ammonia proposals that could impact strategically important agricultural regions such as Tandragee, Banbridge and Newry and will have knock-on effects for both their communities and various adjacent sectors.

The proposals will ultimately leave us uncompetitive within five years.

I installed a heat exchanger costing £100k.

I never build outside the planning permissions process.

Sources: <sup>[1]</sup> KPMG/DCNI Ammonia proposals industry Survey. Fieldwork conducted from 23-31 October-2023. Sample size: 388 organisations  
<sup>[2]</sup> KPMG consultations with Northern Irish agriculture industry stakeholders, October-2023



# **Appendix 2: Assumptions and sources**

# Assumptions and limitations

Key assumptions and limitations are outlined below.

| Assumption / Limitation  |  |
|--|--|
| <b>Farm level viability</b>  | <p>'Farm Incomes in Northern Ireland 2021/22' produced by the Department of Agriculture, Environment and Rural Affairs (DAERA) was used as the bases for the farm level viability analysis. This data was used to estimate the impact of unsuccessful planning applications, and the cost of mitigation measures, on the individual farm level income/profit.</p> <p>The expected lost in income for each sub-sector as a result of unsuccessful planning applications was calculated based on the KPMG/DCNI Ammonia Survey of NI farmers.</p> <p>The cost of implementing mitigation measures was derived from the findings of AFBI (Agri-Food and Biosciences Institute): "The cost of tackling ammonia emissions".</p>  |
| <b>Sector economic output</b>  | <p>DAERA's Statistical Review of Northern Ireland Agriculture 2022 and the Farm Incomes in Northern Ireland 2021/22 are the main data sources underlying the analysis of the sector-wide impacts. This data was used to inform the analysis across five sectors: dairy, beef, sheep, pork and poultry.</p> <p>The following assumptions are made, using the DAERA data for the sector level analysis:</p> <ul style="list-style-type: none"> <li>• The aggregate gross margin estimates for the main agricultural sectors were used to establish the income (outputs) and variable costs per sector</li> <li>• Data on the breakdown of fixed costs per sub-sector is limited. Fixed costs for each sub-sector are calculated based on total variable costs (a percentage of the same), from the Farm Performance Indicators data</li> <li>• As output or farm revenue decreases, there is a reduction in total variable and fixed cost. The rate of cost reduction is determined by the individual farm level analysis for variable and fixed costs multiplied by the expected number of farms that where unsuccessful in their planning application, based on historic planning data and the KPMG/DCNI survey.</li> </ul> <p>The change in spend is used as input for KPMG's economic impact assessment model.</p> |
| <b>Economic impact of capital expenditure on mitigation measures</b> | <p>The capital cost of implementing mitigation measures was derived from findings of AFBI (Agri-Food and Biosciences Institute): "The cost of tackling ammonia emissions". The cost provided by AFBI are annual costs per tonne of ammonia reduced. This annual costs was then multiplied by the potential annual reduced ammonia and by the expected life of the asset to get the total capital costs. This is then used in KPMG's economic impact assessment model.</p>  |
| <b>Cost of mitigation per kg</b>                                     | <p>The following average carcass weights were used to calculate the cost per kg: Dairy cow – 312kg (culled cows), Beef cattle – 344kg, Poultry – 2.6kg, pig – 94kg, sheep 22kg.</p>  |

# Sources

## Sources used in this report are listed below.

- Agri-Food and Biosciences Institute (AFBI), (2021, 2023)
- College of Agriculture, Food, and Rural Enterprise (CAFRE), (2023)
- Dairy Council of Northern Ireland (DCNI), (2023)
- Department for Infrastructure, (2023)
- Department of Agriculture, Environment and Rural Affairs of Northern Ireland (DAERA), (2022, 2023)
- KPMG/DCNI Ammonia Proposals Industry Survey (2023)
- Mineral Products Association Northern Ireland (MPANI), (2023)
- Ulster Farmers' Union (2023)



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