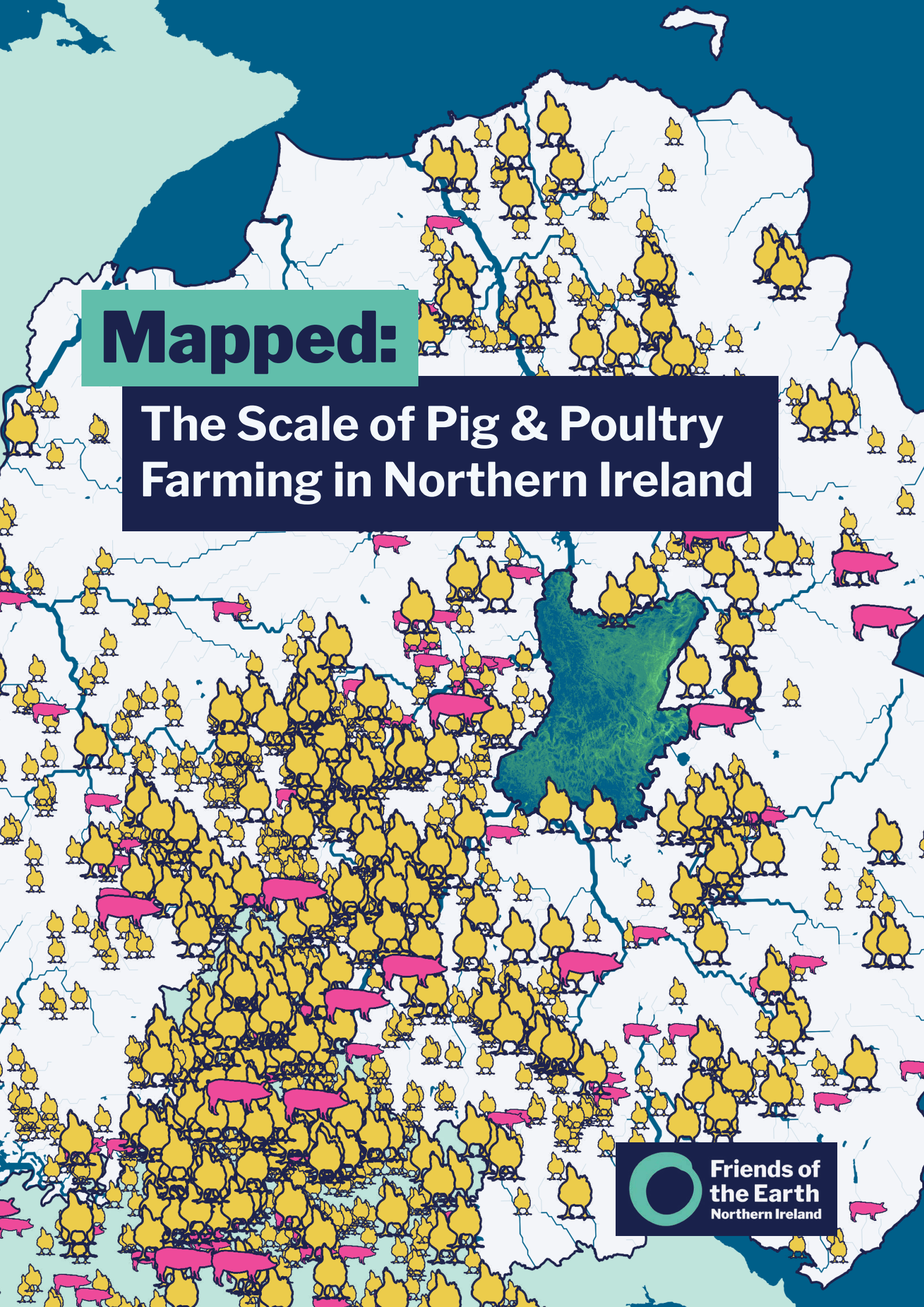


Mapped:

The Scale of Pig & Poultry Farming in Northern Ireland

Friends of the Earth Northern Ireland

Contributors:

Materiality:
This report was researched and designed by Materiality for Friends of the Earth Northern Ireland.

> Materiality combines spatial mapping, coding and the analysis of large datasets to solve research problems that conventional methods miss. We have used our unique set of skills to track diffuse pollution, expose corporate secrecy and uncover social inequalities. Creative visualisation sits at the heart of our work, enabling us to tell compelling stories with data that supports movements and drives policy change. See more at: mtrlty.org

Peter Brooks was the lead researcher and designer, with technical investigation and web support from Daniel Carey.

Shauna Corr, investigative journalist, contributed to research and report writing.

Friends of the Earth Northern Ireland

Materiality

Contents

Foreword

Shauna Corr

The scale and spread of pig and poultry production, its resulting animal waste, and the rise and oversight of nutrient pollution in Lough Neagh has been laid bare for the first time since the government programme Going for Growth was launched at the Balmoral Show in 2013.

Northern Ireland's largest drinking water source has suffered extreme algal blooms every summer since 2023 as a result of the food production and sewage waste that's feeding toxic cyanobacteria in the UK and Ireland's largest freshwater lake.

Around half of Northern Ireland's drinking water is sourced from the lough while around 43% of the land also drains into it through ditches, streams and rivers in its catchment.

Agriculture and sewage pollution are largely to blame for the excess nutrients that have effectively turned Lough Neagh green - with rising water temperatures caused by climate change; sand extraction that's disturbing nutrients stored in its bed and invasive zebra mussels that clean the water allowing sunlight to penetrate further, also aiding algae growth.

According to research by Northern Ireland's Agri-Food and Biosciences Institute, over 60% of the excess nutrients in Lough Neagh come from agriculture, over 20% from sewage and the rest from septic tanks, industry and households.

This report illustrates the spread of pig and poultry production over the past 13 years by showing farm placement, those that hold intensive permits, their proximity to Lough Neagh and where their waste is going.

We have also analysed water quality data, food exports and supply chains in a bid to showcase the big picture surrounding pig and poultry farming, as well as the beneficiaries and repercussions of sudden growth without any Strategic Environmental Assessment.

According to planning documents, intensive permits and agricultural census data there were 1,006 farms rearing poultry and 403 farms keeping pigs in Northern Ireland in 2025.

Our research uncovered a 34% increase in poultry and a 74% rise in the number of pigs reared for slaughter in Northern Ireland compared to 2012 - with 64% of poultry and 61% of pigs raised inside the Lough Neagh catchment, which extends into County Monaghan.

Meanwhile, the majority of poultry farms containing 40,000-plus birds and pig farms with at least 2,000 pigs or 750 sows are also in the lough's catchment.

Tyrone holds the most poultry and pigs, with 54 birds and 1.5 pigs per person.

But the real problem is manure, which has risen a combined 545,749 tonnes across pigs and poultry from 2012 to 2024, from conservative estimates.

Poultry manure accounts for 63% of the increase in algae-sparking phosphates compared to 16% from pigs. For comparison, phosphates from cattle manure are up 33% and from sheep, they have fallen 12%.

All manure created on the largest NI pig farms feeding Cranswick and Sofina (Karro) is spread on land along with 21% of the litter created in poultry sheds contracted to Moy Park (now Pilgrim's Europe). Pilgrim's Europe (Moy Park) is likely supplied by 91.9% of intensive poultry permits. But according to a 'Moy Park Poultry Litter Workings' document from 2014, it had aimed to spread 1% on Northern Irish land.

There is no suggestion of any wrongdoing by the companies featured in this report.

What it does show is the suspected impact of Going for Growth alongside major gaps in pollution data and the official oversight of polluting industries.

Recommendations

Friends of the Earth Northern Ireland

Friends of the Earth strongly advise these recommendations for immediate implementation:

- **A moratorium on all new intensive units including any expansion of stock numbers and new units on existing farms.**
  Stop notices to be enforced and animals removed from all units without planning permission. A pause on animal units is urgently needed, to identify the current pollution excesses where damage occurs. This is to establish a baseline to highlight where reductions are to be made.

- **A reduction of animal numbers in existing units, with progress towards a less intensive animal agricultural model in line with agroecology.**
  A just transition which supports farmers to reduce their stocking densities and ensures farmers are paid a fair price. No new animal units are to be approved until a transition agreement has been approved.

- **A fully resourced independent Environmental Justice Agency.**
  An independent environmental protection agency, that is free from government interference, has strong enforcement powers, provides all factory farming data in a transparent and accessible way, has powers to prosecute and will appropriately fine those who pollute and damage the environment.

- **A policy shift in public procurement towards plant-based food.**
  A greater number of plant-based foods to be made available in all civic buildings with a reduction in meat-based meals. Education, access and support to transition communities towards increasing healthy nutritious plant-based diets at home.

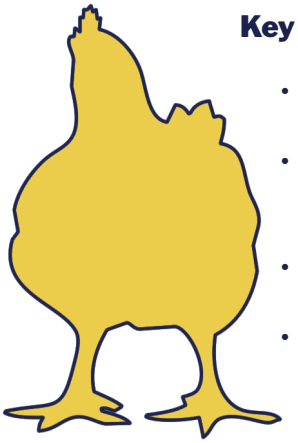
- **Adoption of the Friends of the Earth five-point recovery plan for Lough Neagh.**
  A community and environment centered approach for the protection of Lough Neagh, our largest freshwater lake in the UK and Ireland. The 5 point plan includes: independent Environmental Protection Agency; Lough Neagh to have community ownership and rights of nature enshrined; a Citizen's Assembly; a moratorium on sand mining, investment in sewage infrastructure and no more factory farms; and every group with an interest in Lough Neagh to declare it and every conflict of interest to be on the table.

Key Findings

The *Going for Growth* policy, convened by Michelle O'Neill and Arlene Foster and launched in 2013, aimed at "accelerating the growth of farming, fishing and food and drink processing in Northern Ireland to 2020 and beyond"(DAERA 2017).

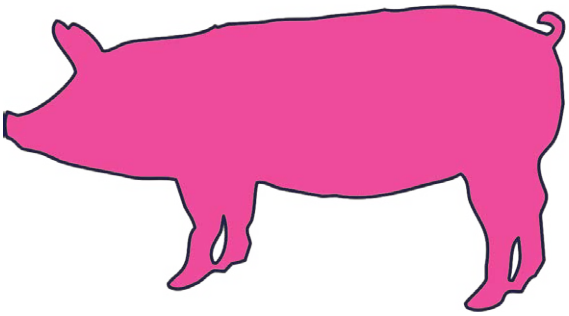
O'Neill and Foster concluded that the policy did not need a strategic environmental assessment. (Northern Ireland Assembly 2014).

We reviewed official statistics on the number of poultry and pigs, and farms stocking these animals, looking at where they are in Northern Ireland and how numbers have changed since Going for Growth:



Key Poultry Statistics:

- 25,785,289 poultry in 2025
- 40% more poultry and 66% more manure compared to 2012
- 2.6 times more poultry per km^2 than in GB
- Over 1 million more poultry than Scotland and Wales combined, with 7x less land area
- 138,058,381 poultry slaughtered during 2024
- 83+% of sales value was from sales outside NI*
- 1006 farms kept poultry in 2025, 678 farms specialised in poultry
- Free range hens increased the most from 2012 to 2024, by 356%
- Over a year, more meat chickens live in Northern Ireland than egg hens, 138 million compared to 7 million



Key Pig Statistics:

- 744,858 pigs in 2025
- 50% increase in pigs and 48% more manure compared to 2012
- 2.9 times more pigs per km^2 than GB
- Over double the amount of pigs than Scotland and Wales combined, with 7x less land area.
- 1,907,993 slaughtered in 2024
- 83% of sales value from sales outside NI*
- 403 farms kept pigs in 2025, 141 farms specialised in pigs.

We estimate that pigs produce four times more manure than poultry across Northern Ireland. However, poultry had the highest relative increase in manure production since 2012. In 2025, we calculated that three times more phosphate was produced by poultry than pigs.

We also identified intensive permits and approved planning applications for poultry and pig farms for detailed mapping and analysis: through planning applications and intensive permits, we mapped 1107 farms, counting 29,991,284 birds and 156,307 pigs.

Official statistics indicate that there may be more pig farms than pig farms granted planning permission. We identified 71 approved pig farm applications, while the NI Agricultural Census lists a minimum of 141 pig farms.

We looked at links between broiler (meat chickens) planning applications and Going for Growth as a case study: 79% of approved applications between 2014 and 2020 cited Going for Growth - 90% of the chicken population expansion, equalling 7.8 million birds.

We have identified the dominant poultry, egg, and pig companies in Northern Ireland: Pilgrim's Europe (Moy Park), Ready Egg, Karro and Cranswick. We have created the first public maps of where their supply chains are likely to cover in Northern Ireland*.

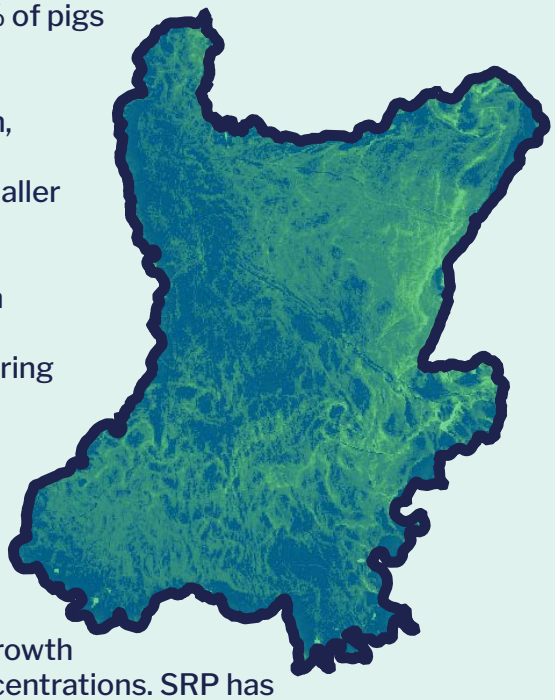
We reviewed the latest manure use reporting documents for each intensive farm. All pig manure was spread to land within Northern Ireland. Poultry manure was used within Northern Ireland, and exported to the Republic of Ireland and Great Britain. According to available records, 41% was used in anaerobic digestion, 29% incorporated into mushroom compost and 22% spread on land directly.

Our research also found that 64% of poultry and 61% of pigs are raised within the Lough Neagh catchment area.

The Lough Neagh catchment extends into Monaghan, covering a just under a third of the county. Half of the intensive permits in Monaghan and over a third of smaller farms are within the Lough Neagh catchment.

While Lough Neagh is larger than the biggest lakes in England, Scotland, Wales and the Republic of Ireland combined, Lough Neagh has fewer long-term monitoring stations.

Soluble Reactive Phosphate (SRP) is a key cause of algae blooms in Lough Neagh (shown right). Manure contains phosphate, which when used as fertiliser, contributes to phosphate in rivers and lakes.



SRP levels increased after Going for Growth and have not returned to previous concentrations. SRP has been above the risk level for algae blooms since 2013.

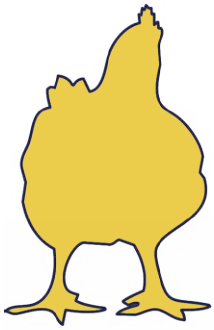
Most rivers within the Lough Neagh catchment have ecological failures due to SRP (NIEA 2025b).

Andrew Muir has apologised for the environmental impact of Going for Growth. He said: "I would say, as minister of agriculture, environment and rural affairs, we got things wrong in the past, and I apologise for that ... I want to fix the situation that we're seeing around this" (Cox 2025)

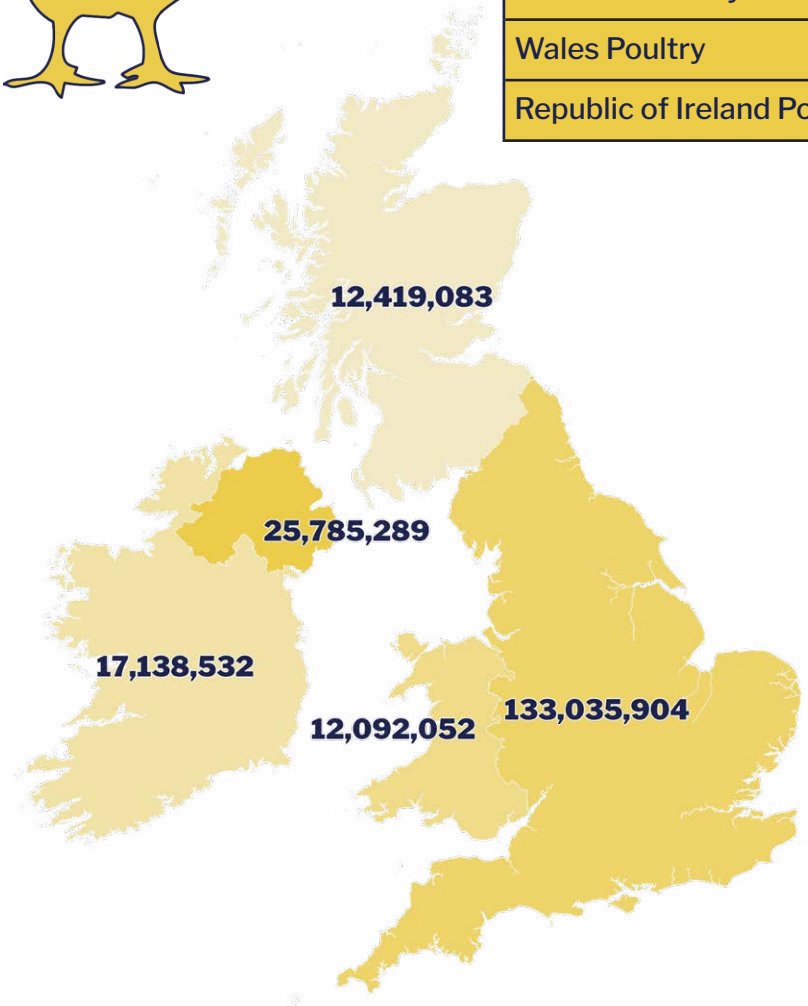
Portraits sourced from Wikimedia Commons and edited. See bibliography for full citations.
Lough Neagh satellite imagery sourced from Copernicus, non-bloom lake water recoloured.

Pigs and Poultry across the United Kingdom and Ireland:

Northern Ireland has the highest density of pigs and chickens in the UK, and more than the Republic of Ireland. There is on average 1802 poultry per square kilometre in Northern Ireland, compared to 685 in Great Britain and 244 in the Republic of Ireland. Northern Ireland has a density of 52 pigs per square kilometre, Great Britain has 17 and the Republic of Ireland 24.



Country Livestock Type	Population*	Year
Northern Ireland Poultry	25,785,289	2025
England Poultry	133,035,904	2025
Scotland Poultry	12,419,083	2025
Wales Poultry	12,092,052	2025
Republic of Ireland Poultry	17,138,532	2023



Poultry

1802 Poultry population density per square kilometre.

158

Label: total poultry.

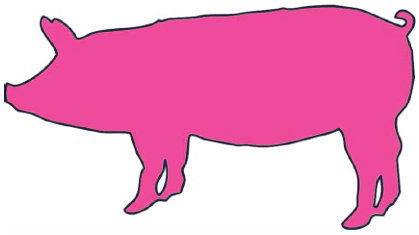
Northern Ireland Headline Statistics:

Over 2025, approximately 155,308,001 poultry were on farms in Northern Ireland, producing an estimated 349,650 tonnes of manure. This is a 40% increase in poultry and 66% increase in manure since before Going for Growth was announced.

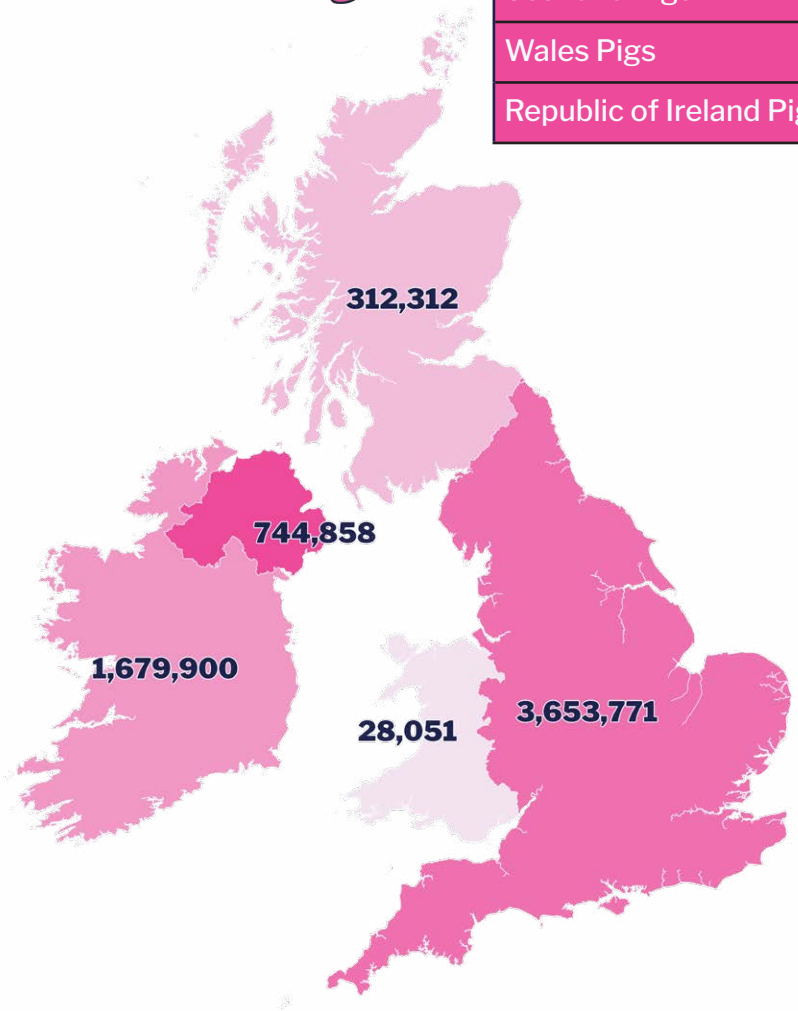
	Poultry Population over Year	Manure Estimate (tonnes)
2012	109,502,613	211,229
2025	153,487,236	349,650
Change	+40%	+66%

National populations above and right from livestock census statistics (DEFRA 2025a; CSO 2024, 2025a).

There are 13 birds per person in Northern Ireland, compared to 2 in Great Britain and 3 in the Republic of Ireland. If the pigs in Northern Ireland were split between the population, each person would receive over a third of a pig (39%). In Great Britain, this would be 6% of a pig and 31% in the Republic of Ireland.



Country Livestock Type	Population	Year
Northern Ireland Pigs	744,858	2025
England Pigs	3,653,771	2025
Scotland Pigs	312,312	2025
Wales Pigs	28,051	2025
Republic of Ireland Pigs	1,679,900	2024



Pigs

52

1

Pig population density per square kilometre.

Label: total pigs.

Northern Ireland Headline Statistics:

Over 2025, around 1,575,679 pigs were kept on farms in Northern Ireland, excreting an estimated 1,261,455 tonnes of manure. Pig numbers have increased by 50% since before the Going for Growth policy, and pig manure is up by 48%.

	Pig Population over Year	Manure Estimate (tonnes)
2012	1,051,954	854,127
2025	1,575,679	1,261,455
Change	+50%	+48%

Statistics calculated from broiler and finishing pig slaughter numbers and agricultural census stats for other types of poultry and pig. This presents the best estimate of the poultry population and manure production for the duration of a year. 2012 is the year before Going for Growth was announced. See page 18 for manure detail.

How many pigs and poultry are there in Northern Ireland?

According to the latest agricultural census, there were 25,785,289 poultry and 744,858 pigs across Northern Ireland in June 2025 (DAERA 2025a). 1006 farms held poultry and 403 farms kept pigs*. County Tyrone has the highest density within Northern Ireland, at 54 birds per person and 1.5 pigs per person. The statistics indicate that the industry appears more consolidated in Antrim and Armagh. While there are less pigs and poultry in these counties, the farms are bigger on average.

County Tyrone contained both the most poultry, the most farms with poultry, and had the highest density of birds by land area - 10,089,422 poultry across 273 farms, with 3242 birds per square kilometre. While Antrim had the second largest poultry population at 6,888,886, the average number of birds per farm was higher than Tyrone, at 40,286 compared to 36,958.

County Tyrone had the most pigs, followed closely by Armagh, which had 11,307 less. Tyrone contained the most farms with pigs, 40 farms, but at a significantly lower average population than Armagh. There was an average of 16,871 pigs per farm in Armagh, compared to 7031 in Tyrone. This is matched by the density by land area, with 204 compared to 87 per square kilometre.

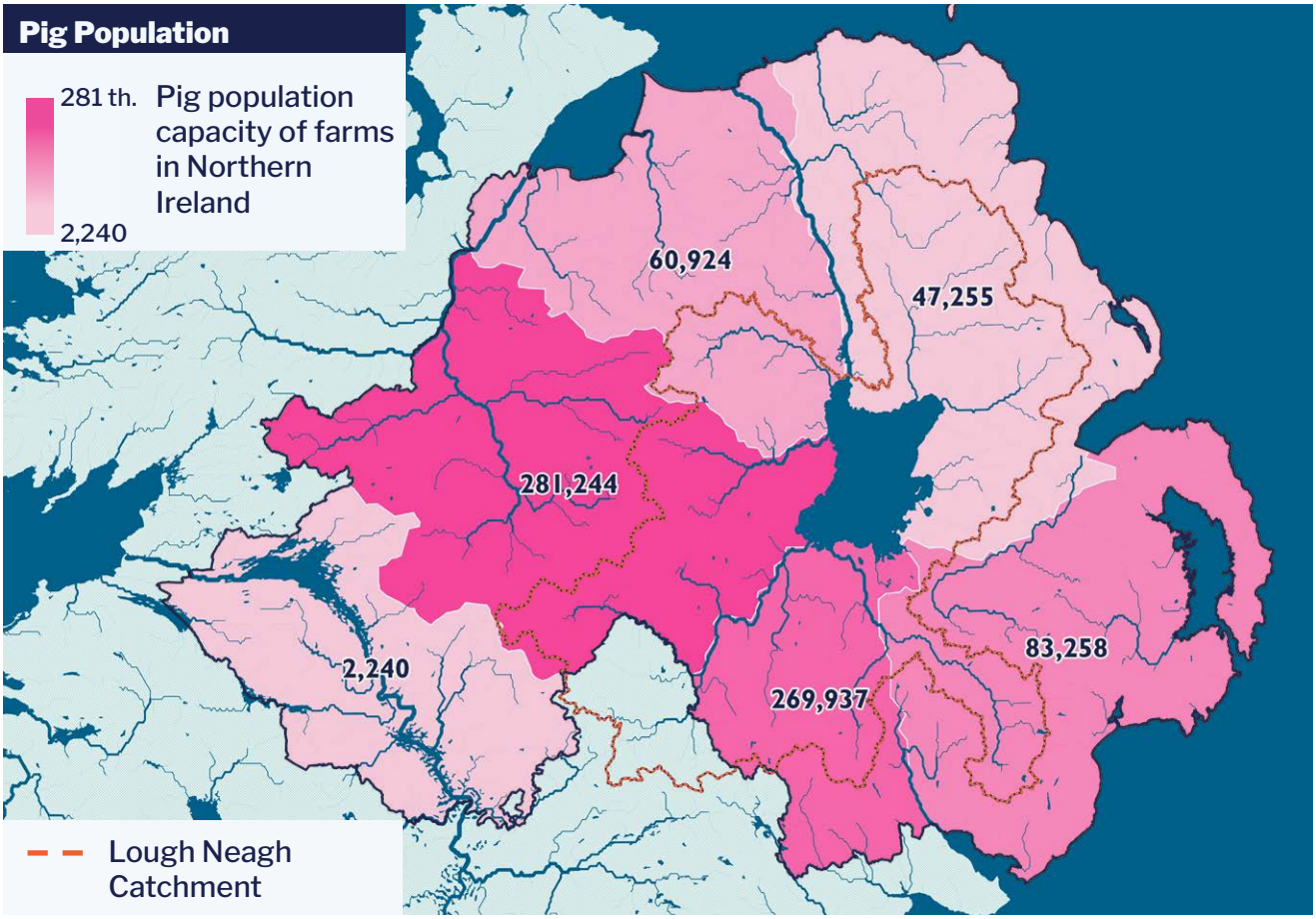
County**	Poultry Farms	Pig Farms	Poultry	Pigs	People	Poultry per person	% Pig per person
Antrim	171	20	6,888,886	47,255	651,321	11	7
Armagh	87	16	3,364,160	269,937	194,394	17	139
Derry/Londonderry	43	Redacted	1,806,442	60,924	252,231	7	24
Down	56	34	2,348,015	83,258	553,261	4	15
Fermanagh	48	Redacted	1,288,364	2,240	63,585	20	4
Tyrone	273	40	10,089,422	281,244	188,383	54	149
Northern Ireland	**678**	**141**	**25,785,289**	**744,858**	**1,903,175**	**14**	**39**

How to use these pig and poultry statistics:

The number of poultry and pigs in Northern Ireland varies depending on the dataset consulted, we have used the best available official data. For all farms stocking poultry and pigs, please reference the text at the top of this page (*). The county breakdown above is a reduced figure, covering only the specialist pig and poultry farms. Poultry and pig figures are unaffected. Census statistics only capture a snapshot rather than figures for the duration of a year. For statistics on pig and poultry populations across a year (the figures above are snapshots at one point in year), please see pages 8 and 9. For official statistics at a local (ward) level refer to page 22. Please see our mapping of planning applications and intensive permits on page 12 and page 30 onwards for the highest spatial detail.

**This figure refers to any farm keeping poultry or pigs. County level farm figures on this page and in later tables, refer to DAERA's census category of 'specialist farms', which discounts some farms with pigs and poultry.*

***Farm and livestock statistics sourced from the 2025 Agricultural Census In Northern Ireland, human population from the latest census data (DAERA 2025a; NISRA 2021). Pig farms in Derry/Londonderry and Fermanagh redacted by DAERA for confidentiality. The total indicates that there are 31 pig farms across the two counties.*

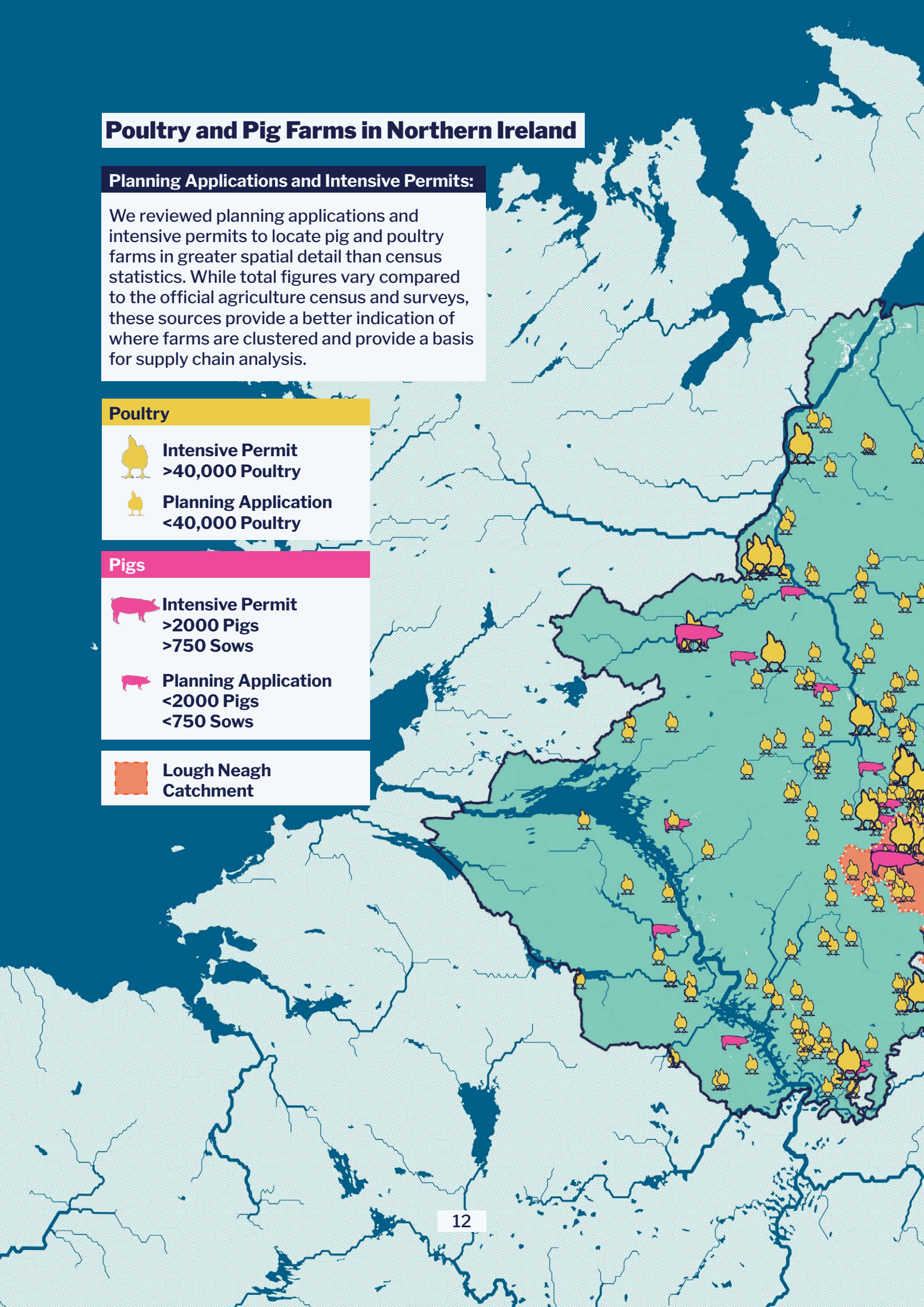


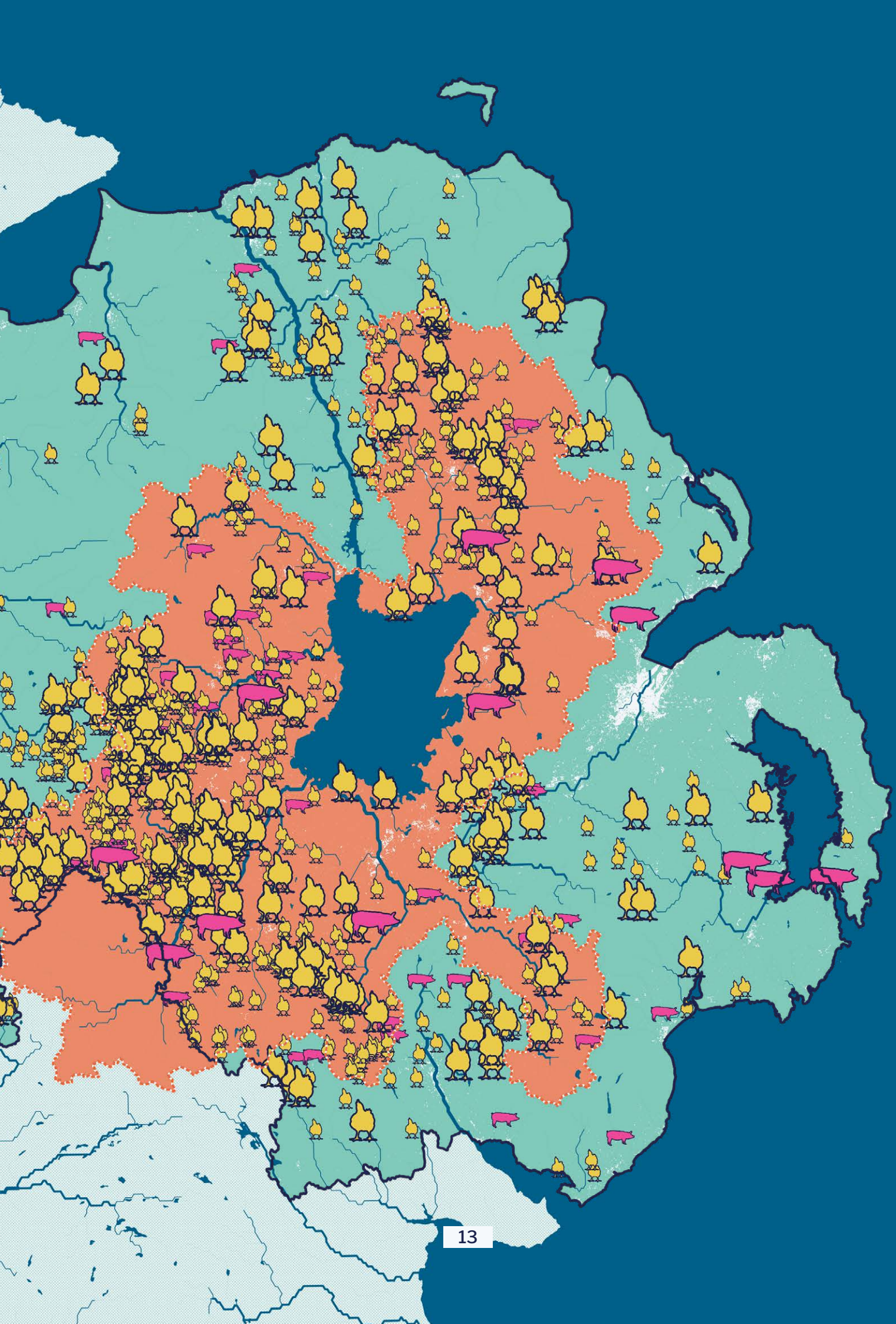
Using 2024 population estimates for the UK (ONS 2025b), 2023 and 2024 for the Republic of Ireland (CSO 2024, 2025b), and the most recent census for Northern Irish county level (NISRA 2021). Country areas were calculated using official boundaries (ONS 2025a; EPA 2025).

Poultry and Pig Farms in Northern Ireland

Planning Applications and Intensive Permits:

We reviewed planning applications and intensive permits to locate pig and poultry farms in greater spatial detail than census statistics. While total figures vary compared to the official agriculture census and surveys, these sources provide a better indication of where farms are clustered and provide a basis for supply chain analysis.





How has this changed since Going for Growth?

Since Going for Growth was announced, the poultry population of Northern Ireland has increased by 34% and pigs by 74%, according to Agricultural Census statistics.

In 2013, ministers Michelle O'Neill and Arlene Foster announced Going for Growth, a plan for 'accelerating the growth of farming, fishing and food and drink processing in Northern Ireland to 2020 and beyond' (DAERA 2017). Friends of the Earth is concerned that expansion plans did not take into account the pollution risks from increases in livestock production.

A Strategic Environmental Assessment was not carried out before Going for Growth was approved and was not required, according to O'Neill (Northern Ireland Assembly 2014). When questioned on assessing Going for Growth's environmental impacts, O'Neill responded that while "the report is very extensive in scope and aspiration and it contains over 100 recommendations, some of which are likely to have environmental implications ... the Going for Growth report itself does not require a Strategic Environmental Assessment (SEA)". We asked DAERA for comment on the environmental implications

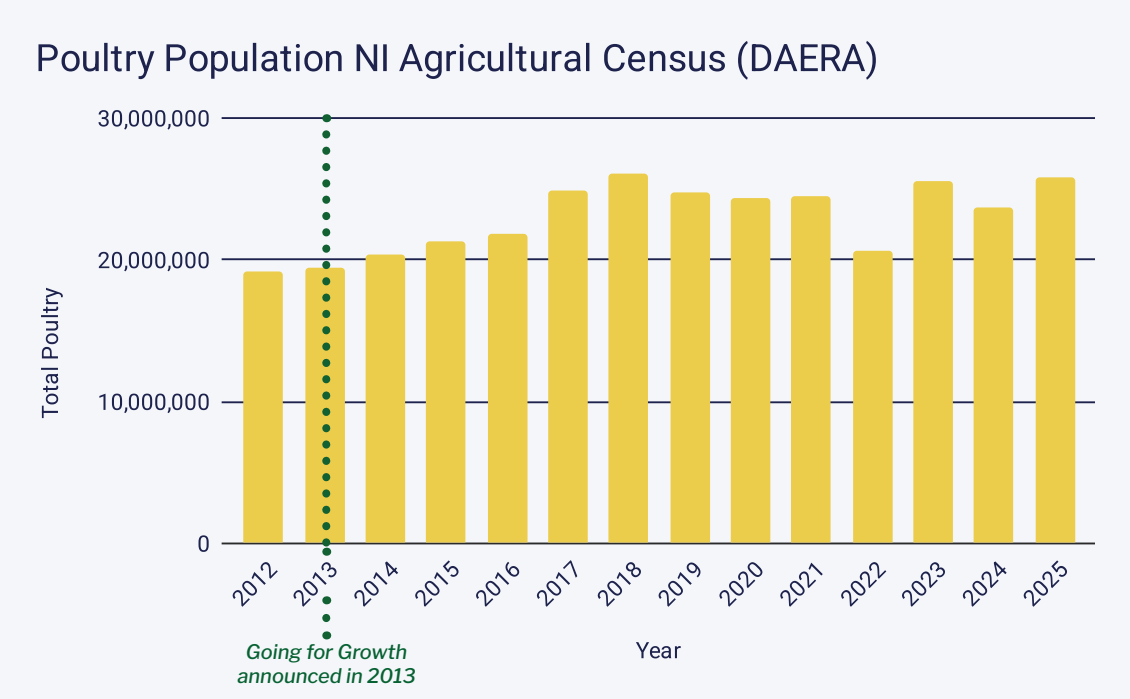
County	Poultry 2012	Poultry 2025	Change	%
Fermanagh	655,000	1,288,364	+633,364	+97%
Armagh	2,121,000	3,364,160	+1,243,160	+59%
Down	1,610,000	2,348,015	+738,015	+46%
Derry/ Londonderry	1,254,000	1,806,442	+552,442	+44%
Antrim	4,989,000	6,888,886	+1,899,886	+38%
Tyrone	8,559,000	10,089,422	+1,530,422	+18%
Total**	19,188,182	25,785,289	+6,597,107	+34%

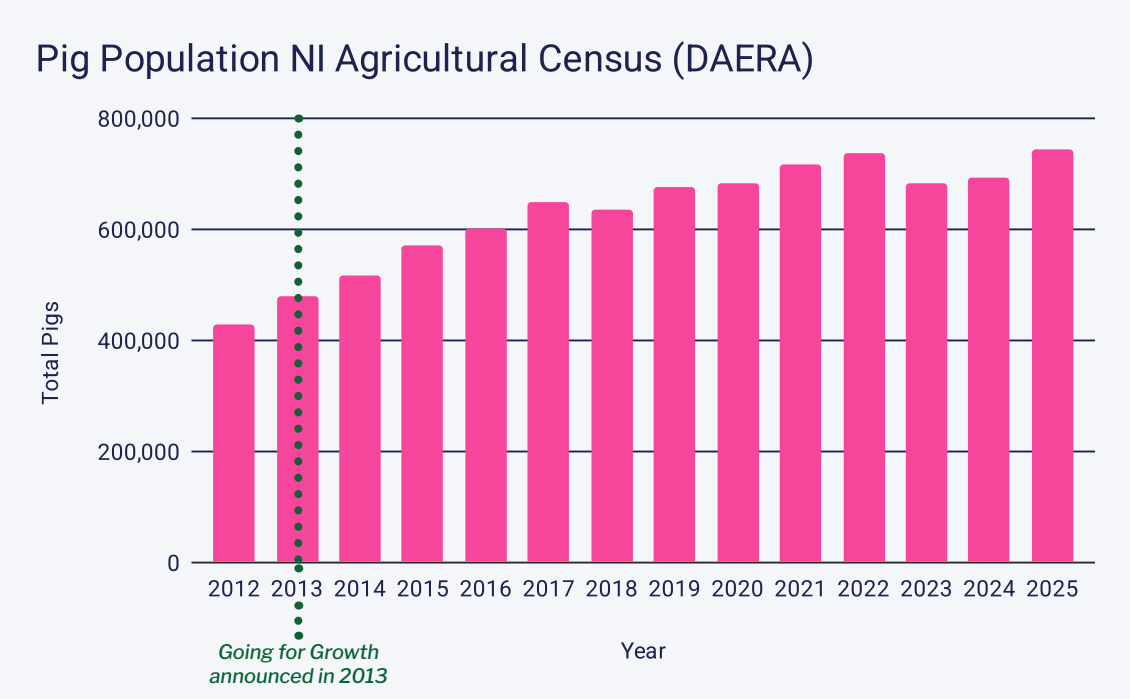
County	Pigs 2012	Pigs 2025	Change	%
Armagh	82,235	269,937	+187,702	+228%
Tyrone	151,448	281,244	+129,796	+86%
Derry/ Londonderry	58,490	60,924	+2,434	+4%
Fermanagh	2,168	2,240	+72	+3%
Down	83,691	83,258	-433	-1%
Antrim	48,892	47,255	-1,637	-3%
Total	426,924	744,858	+317,934	+74%

Poultry totals taken from census total due to county total rounding in the 2012 census.

of Going for Growth and potential impacts on Lough Neagh, but DAERA declined to comment without reviewing the full report.

Poultry levels peaked at 26,030,583 in 2018, while 2025 saw the most pigs at 25,785,289. County Armagh had the highest proportional and overall rise in pig numbers, by 187,702 or 228%. While Antrim had the largest increase in poultry numbers, 1,899,886 more, Fermanagh had the highest proportional increase at 97%.





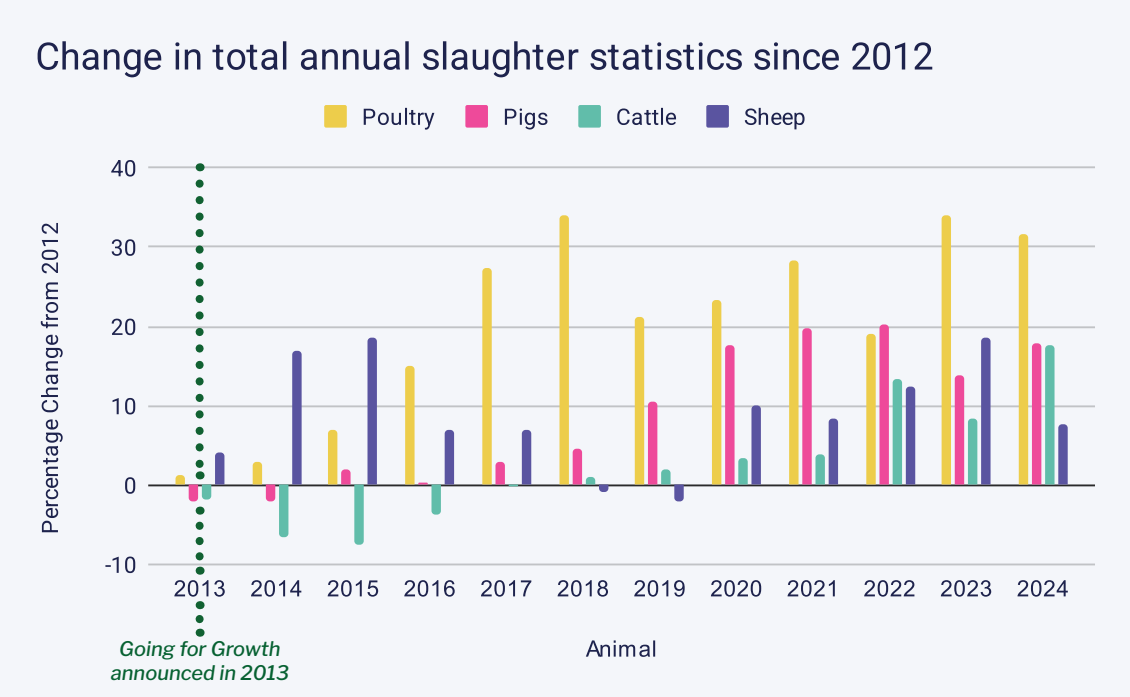
How many animals are slaughtered in Northern Ireland?

Poultry are slaughtered in the largest number per year in Northern Ireland, followed by pigs, cattle and then sheep. 138,058,381 poultry were killed in 2024 and 1,907,993 pigs. Poultry slaughter numbers have increased every year since Going for Growth was announced, with pigs increasing every year since 2015.

Livestock Type	Slaughtered in 2012	Slaughtered in 2024	Change
Poultry	104,862,117	138,058,381	+32%
Pigs	1,618,130	1,907,993	+18%
Cattle	446,356	524,789	+18%
Sheep	423,891	456,886	+8%

Statistics for pigs, cattle, and sheep are published by DAERA (DAERA 2026b, 2026d). Numbers of poultry slaughtered were provided by DAERA after press office and information requests.

32% more poultry were slaughtered in 2024, compared to 2012, with the largest increase in 2018 at +34%. 2022 saw the largest increase in pigs slaughtered since 2012: 20%.



There are 13 poultry or pig slaughterhouses in Northern Ireland (Food Standards Agency 2025). We have mapped these facilities for the dominant pig and poultry processors later in this report. We asked DAERA if they would provide unredacted sales data (discussed right), and to clarify why redactions were made, but DAERA declined to comment without reviewing the full report.

Where are Northern Ireland's pigs, poultry and eggs sold to?

While 3% of the UK's population lives in Northern Ireland (NI), the region produces 25% of the UK's food supply (NIFDA 2025). Most of the sales value in eggs, poultrymeat and pigmeat is from sales outside of Northern Ireland, with the majority from sales to Great Britain (GB), according to the latest publicly available statistics (DAERA and NISRA 2022a). In 2022, the proportion of the total sales value generated from sales outside of NI was likely 77% for eggs, 83% for pigmeat and over 83% for poultrymeat.

Redacted data made it difficult to calculate an exact proportion of sales. The proportion of value derived from sales outside of NI has been calculated by the total sales value minus NI sales value. All values for poultrymeat external sales and export sales have been redacted since 2014 (DAERA and NISRA 2022b). However, the 2022 report is clear that poultrymeat is sold outside of NI at a higher proportion relative to pigmeat.

Sales Type	Outside NI* 2012	Outside NI* 2022
Eggs	79%	77%
Poultrymeat	68%	>83%*
Pigmeat	69%	83%

In 2022, there were five subsectors reliant on markets outside of Northern Ireland (external markets), for more than 80.0 per cent of their total sales – **animal by-products and poultrymeat had the greatest reliance on external markets for sales.**

There were three subsectors in 2022 reliant on **markets outside of the United Kingdom (export sales)**, for more than half of their total sales – animal by-products, milk and milk products and drinks. Fruit and vegetables, beef and sheepmeat, **pigmeat, poultrymeat and eggs all had export sales of less than 20.0 per cent of their total sales.**

The proportion of value from sales of poultrymeat to GB is likely higher than 63%, as less than 20% is exported to the EU or globally and less than 17% stays within NI. GB was the largest market for egg sales, at 73% of total sales value. While data in 2022 for pigmeat was redacted, the value generated from sales to GB will be higher than 63%. Since 2012, sales to GB have risen by 10% for eggs and likely more than 11% and 18% for poultrymeat and pigmeat respectively (DAERA and NISRA 2022c)

Sub-sector (2012)	NI Sales	GB Sales	ROI Sales	REU Sales	ROW Sales
Eggs	21%	63%	16%	0%	0%
Poultry Meat	32%	52%	14%	Redacted	Redacted
Pig Meat	31%	45%	16%	Redacted	Redacted

Sub-sector (2022)	NI Sales	GB Sales	ROI Sales	REU Sales	ROW Sales
Eggs	23%	73%	4%	Redacted	Redacted
Poultry Meat	Redacted	Redacted	Redacted	Redacted	Redacted
Pig Meat	17%	Redacted	9%	2%	Redacted

NI: Northern Ireland, GB: Great Britain, ROI: Ireland, REU: Rest of European Union, ROW: Rest of World. Original DAERA monetary figures in appendix.

Manure Production:

We estimated the manure production of livestock in 2012 and 2025. 2012 was the year prior to the announcement of Going for Growth, and 2025 the latest year available for official statistics. **Pigs produce an estimated 4 times more manure than poultry, while poultry had the highest relative increase in manure production. In 2025, we calculate that poultry produced 3 times more phosphate than pigs: 3,561 tonnes more.** Poultry manure increased by 66% from 2012 to 2025, an additional 138,421 tonnes. Pig manure increased by 48%, with 407,328 tonnes more in 2025 compared to 2012.

Livestock Type	Manure in 2012	Manure in 2025	Change from 2012
Poultry	211,229	349,650	+66%
Pigs	854,127	1,261,455	+48%
Cattle	29,221,115	30,072,836	+3%
Sheep	1,881,000	1,736,918	-8%

Calculations here and in the next table based on slaughter, census and egg statistics, supporting information from the RB209, NAP workbook and established studies (DAERA 2025a, 2012, 2026d, 2019; AHDB 2026; Ball et al. 2024; DAERA 2026c; Mullan 2025; Cauley 2025; Gilmore 2025; DAERA 2025b). This estimate is lower than the 2012 manure quote below as we use conservative but widely cited excretion rate and crop cycle figures.

The volume and intensity of poultry and pig populations in Northern Ireland compounds problems with water quality and environmental health. Nutrients are imported in feed to support high livestock levels, consumed and excreted, presenting an issue of how manure is used, and the nitrogen and phosphorus it contains. The Independent Strategic Review of the Northern Ireland Agri-Food Sector said:

> "During our visits we saw many instances of land cropped and slurry spread right up to the very edge of the field; we were told this was due to rents paid for conacre land (maximise every inch) and the high intensity of some dairy, pig and poultry units (so needing all available land to get rid of slurry)." (Kendall 2022)

This was a problem recognised in 2012 by the poultry industry:

> "The key issue for the poultry sector is that we produce 260,000 tons of poultry litter each year in Northern Ireland but can sustainably manage only 100,000 tons of that. We are therefore left to find a home or an alternative use for 160,000 tons of poultry litter. Linked with that, we also have the prospect of expansion in the poultry sector. If the sector is to expand, our current challenge of 160,000 tons will grow in the coming decade." (Northern Ireland Assembly 2012)

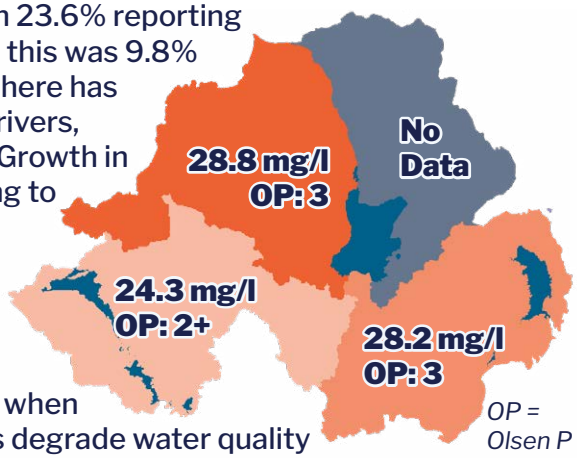
In 2017, manure was identified as the largest source of phosphorus applied to soils (Doody et al. 2020). Pig manure is spread on land in Northern Ireland, as is some poultry litter. A significant proportion of poultry litter is utilised as fertiliser in a by-product form, after energy generation processes - in Northern Ireland, the Republic of Ireland, Scotland and England. Poultry litter is also incorporated into mushroom compost, which once spent, has been commonly spread on both arable and grassland in the Republic of Ireland (EPA 2012). Suggested destinations in 2012 for commercial agricultural use were the East of England and East of Scotland due to demand for soil nutrients (Northern Ireland Assembly 2012). However, according to the latest available regional soil nutrient balances, soils in the East of England are now in nutrient surplus for phosphate (DEFRA 2022).

Soil nutrient levels in Northern Ireland, and across the UK, are a threat to the health of freshwater ecosystems. Nutrients run-off into waterbodies with the weather, a problem set to increase as the climate crisis intensifies weather patterns (Withers et al. 2022).

"The combination of localised intensive livestock production, limited availability of arable land, cost of transporting slurry, limited infrastructure for processing manure and the fact that 57% of soils are classed as high risk for runoff, all pose significant challenges for the agri-food industry in terms of balancing agronomic and environmental objectives." (Doody et al. 2020)

Livestock Type	Phosphate Increase (t)	Share of Increase
Poultry	2,499	+63%
Pigs	611	+16%
Cattle	1,313	+33%
Sheep	-461	-12%

Levels of nitrate in rivers may be increasing, with 23.6% reporting increasing nitrate concentrations, while in 2020 this was 9.8% and 4.6% in 2016 (DAERA 2023d). Since 2012, there has been a trend of increasing phosphorus levels in rivers, coinciding with the announcement of Going for Growth in 2013 (Doody et al. 2020; NIEA 2025a). According to a landmark soil survey (right) (DAERA and AFBI 2025), average P levels in fields are higher than the optimum in all zones where the survey has been completed (DAERA 2018).



OP = Olsen P

Nutrients, while essential to life, cause pollution when concentrations are too high. Excessive nutrients degrade water quality and can cause algae blooms, reducing levels of oxygen in the water for fish and insects, while out-competing plants for light. Meanwhile, all rivers across Northern Ireland are failing chemical health assessments (NIEA 2021a). In Lough Neagh, evidence of last resort antibiotic resistant genes have been detected, alongside livestock manure and human faeces (Salvidge 2026).

When studied in 2017, the majority of phosphorus imported to Northern Ireland was in animal feed, at levels exceeding the demand from agriculture and higher than the European average (Doody et al. 2020). Northern Ireland imported over 350,000 tonnes of soy during 2022 (Greene 2023), and accounts for 25% of the UK's soy imports. This required an estimated 174,000 hectares of land, an area larger than County Armagh (Friends of the Earth 2023).

There are 123 approved feed businesses in Northern Ireland (DAERA 2024b), and at least two facilities import soy from South America. One is owned by Pilgrim's Europe (Moy Park) while the other is a significant feed supplier to Pilgrim's Europe (Moy Park) (RTRS 2021). While no reporting was found on links to deforestation for the Northern Irish supply chains of the companies covered in this report (Pilgrim's Europe (Moy Park), Cranswick and Karro), deforestation linked feed has been imported into Northern Ireland and Pilgrim's Europe's (Moy Park) GB supply chain implicated (Greene 2023; Mighty Earth 2024). Pilgrim's Europe did not repond directly to this point in their comments. Thompsons did not respond to our requests for comment. Pilgrim's Europe (Moy Park), Cranswick and Karro (or through their parent companies) are signatories to the UK Soy Manifesto and have promised deforestation-free supply chains (UK Soy Manifesto 2025).

**In reply to the Mighty Earth report, Pilgrim's Europe (Moy Park) said:*
"The sustainable sourcing of soy is a critical global food industry issue that we are committed to tackling proactively. We keep in close contact with all soy suppliers to comply with upcoming regulation and our commitments. As members of the UK Round Table for Responsible Soy, signatories of the Cerrado Manifesto Statement and active members of the UK Soy Manifesto, we continue to collaborate with industry on solutions to ensure all deforestation risk commodities are verified deforestation and conversion free by end 2025."

Chicken or the Egg?

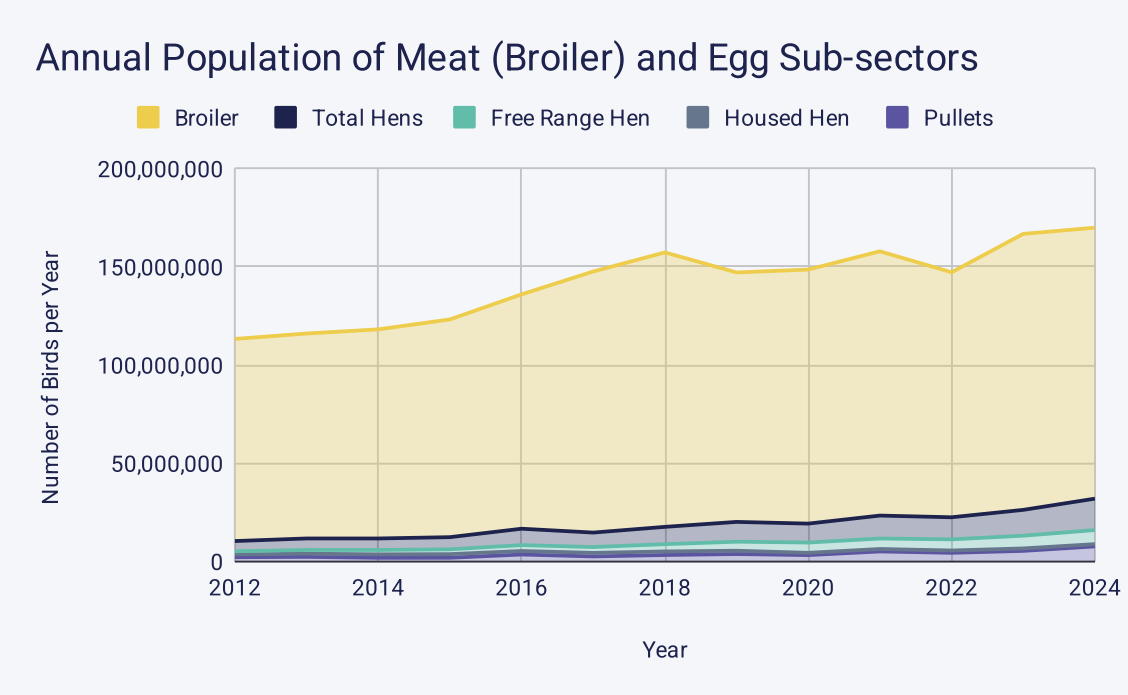
Free range hens had the largest increase from 2012 to 2024, rising in number by 356%. While broiler chickens only increased by 34%, the number of broiler chickens in Northern Ireland over a year remains much higher than the number of free range laying hens, at almost 138 million compared to 7 million.

Poultry Type	Population over 2012	Population over 2024
Broilers	102,916,143	137,975,546
Pullets	2,171,124	7,683,763
Free Range Layers	1,569,890	7,163,215
Housed Layers	1,462,300	1,151,421

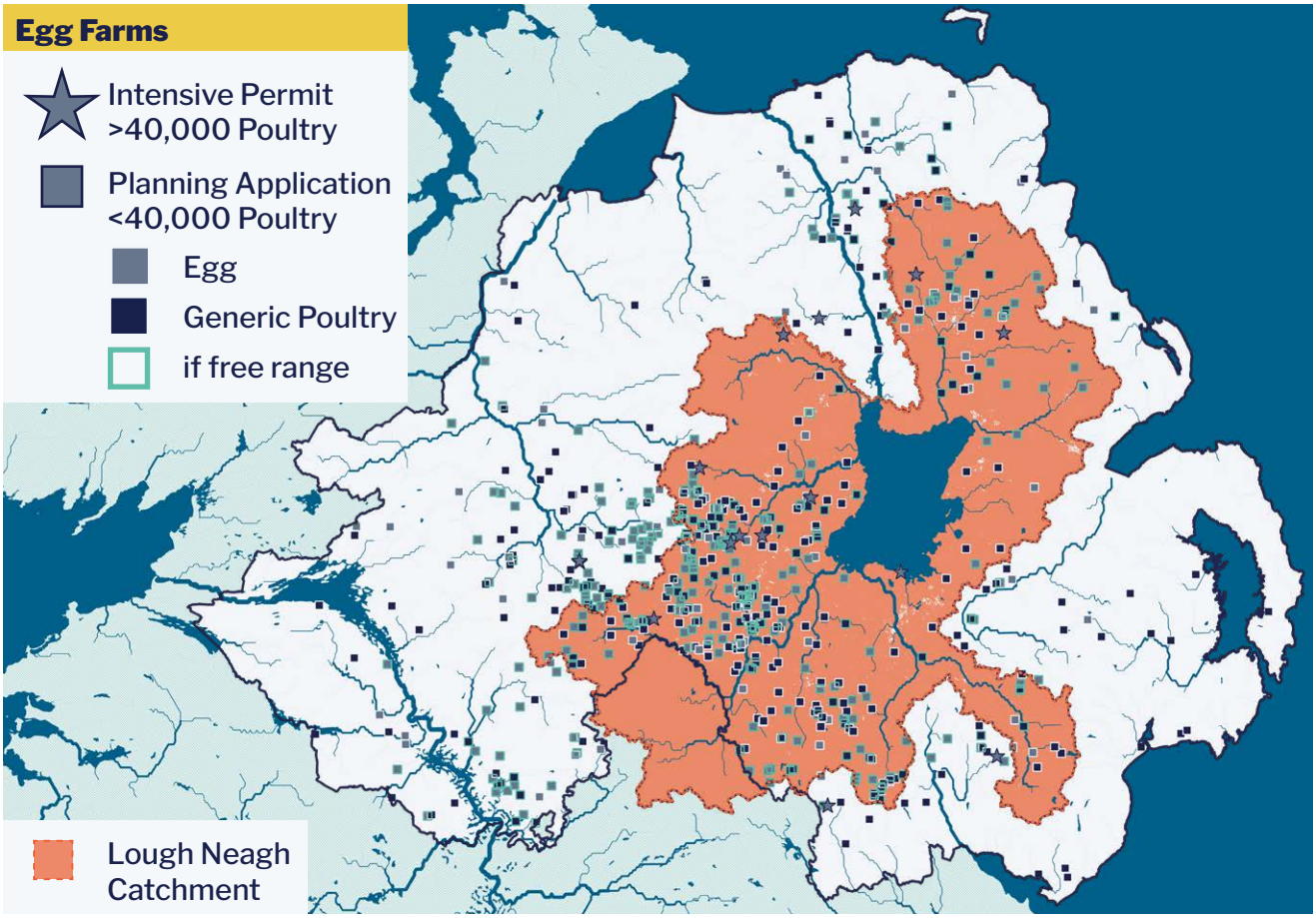
Poultry Type	Manure over 2012	Manure over 2024	Change
Broilers	104,986	140,750	+34%
Pullets	4,994	17,673	+254%
Free Range Layers	27,159	123,924	+356%
Housed Layers	48,987	38,573	-21%

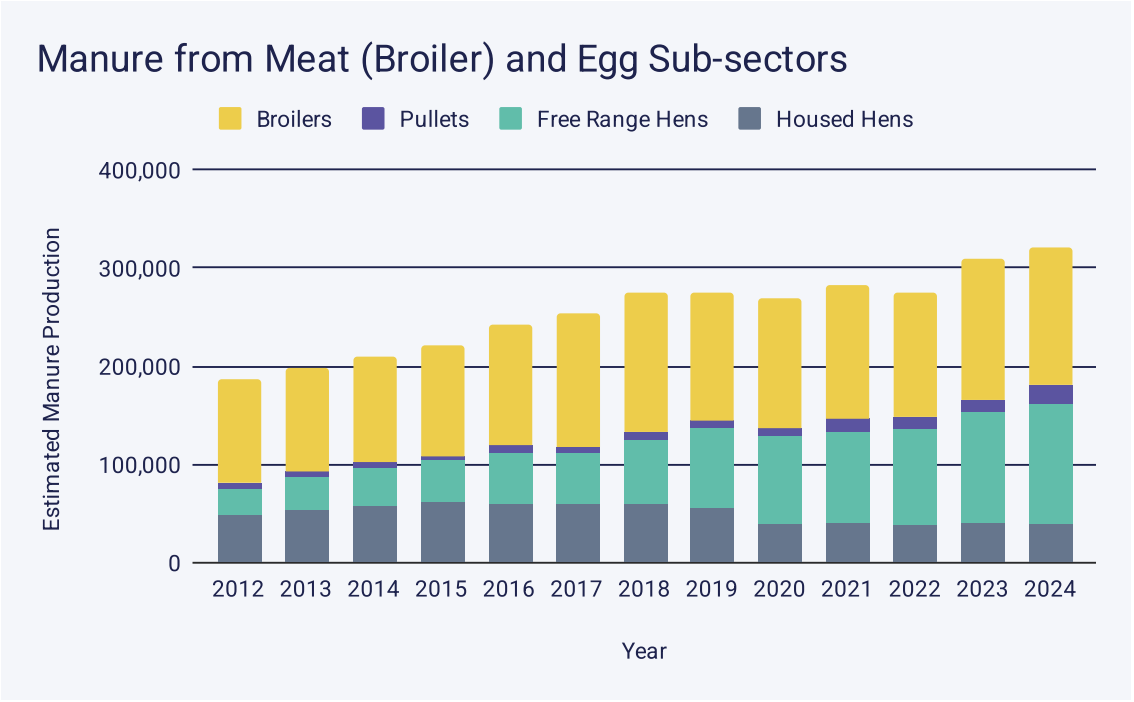
Laying hens, however, produce more manure per bird than broilers. In 2024, 51% of estimated manure production was from laying hens, and 41% in 2012. Free range hens have increased from an overall contribution of 15% in 2012 to 39% in 2024. Housed laying hens have declined since 2012, dropping from 26% of manure in 2012 to 12% in 2024. The broiler sub-sector produced 44% of manure in 2024, down from 56% in 2012*.

Broilers saw the most sustained year-on-year growth from 2014 to 2018, peaking within this period at 11% from 2016 to 2017. The largest single increase for broilers was between 2022 and 2023, 13%, even when a decline of -7% in 2021 to 2022 is accounted for. **Free range hens had the most sustained growth between 2018 and 2020, with a peak 24% growth consecutively from 2017 to 2019.** On average between 2012 and 2024, broilers increased by 3% and free range hens by 14%.



It is possible using less conservative broiler manure excretion figures that broiler manure could be a majority. A conservative but previously cited estimate was used due to a lack of information on farming practices.





Agricultural census numbers underestimate the number of broiler (meat) chickens farmed over a year, as broilers farms house multiple 'crops' of chickens per year, 6.5 on average. A more accurate official metric for broiler population annually is the number of poultry slaughtered (Mullan 2025; DAERA 2025b; Gilmore 2025; Cauley 2025). Figures were not available for 2025, and for 2024 and 2023 only a figure for total poultry slaughtered was provided by DAERA. We used the proportion of broilers slaughtered in 2022, 99.94%, to estimate the numbers for the missing years. The proportion of broilers slaughtered, of total poultry, has been above 98% since 2012. We have used the Egg Packers Survey to source egg laying hen and pullet (young hens) numbers, and the proportions of which are free range or housed (DAERA 2026c). The average pullet crops per year was set at 2.7. The free range category includes organic and perchery/barn hens.

Poultry and Pig Geography:

The following pages map the density of pig and poultry farms across Northern Ireland in greater spatial detail - from ward level, to postcode districts and 10km x 10km grid squares. The latter two focus on pigs rather than poultry to compensate for a lack of information on pig farms available through the planning portals. The section that follows uses planning applications to map poultry and pig farms as points.

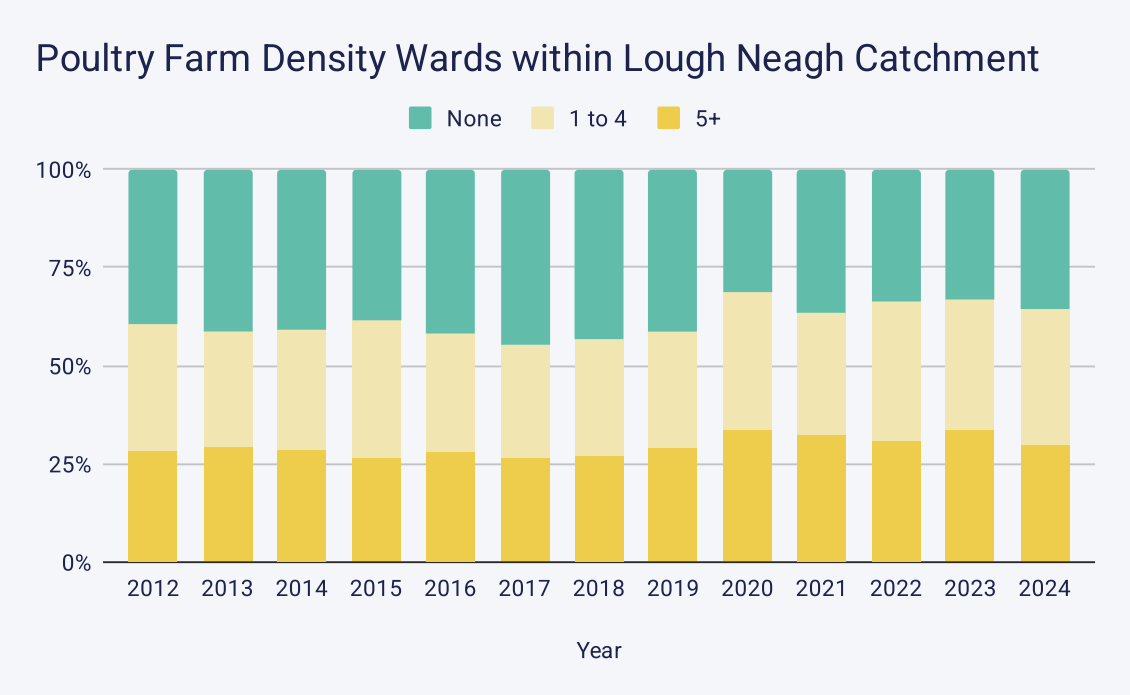
Poultry Farms at Ward Level:

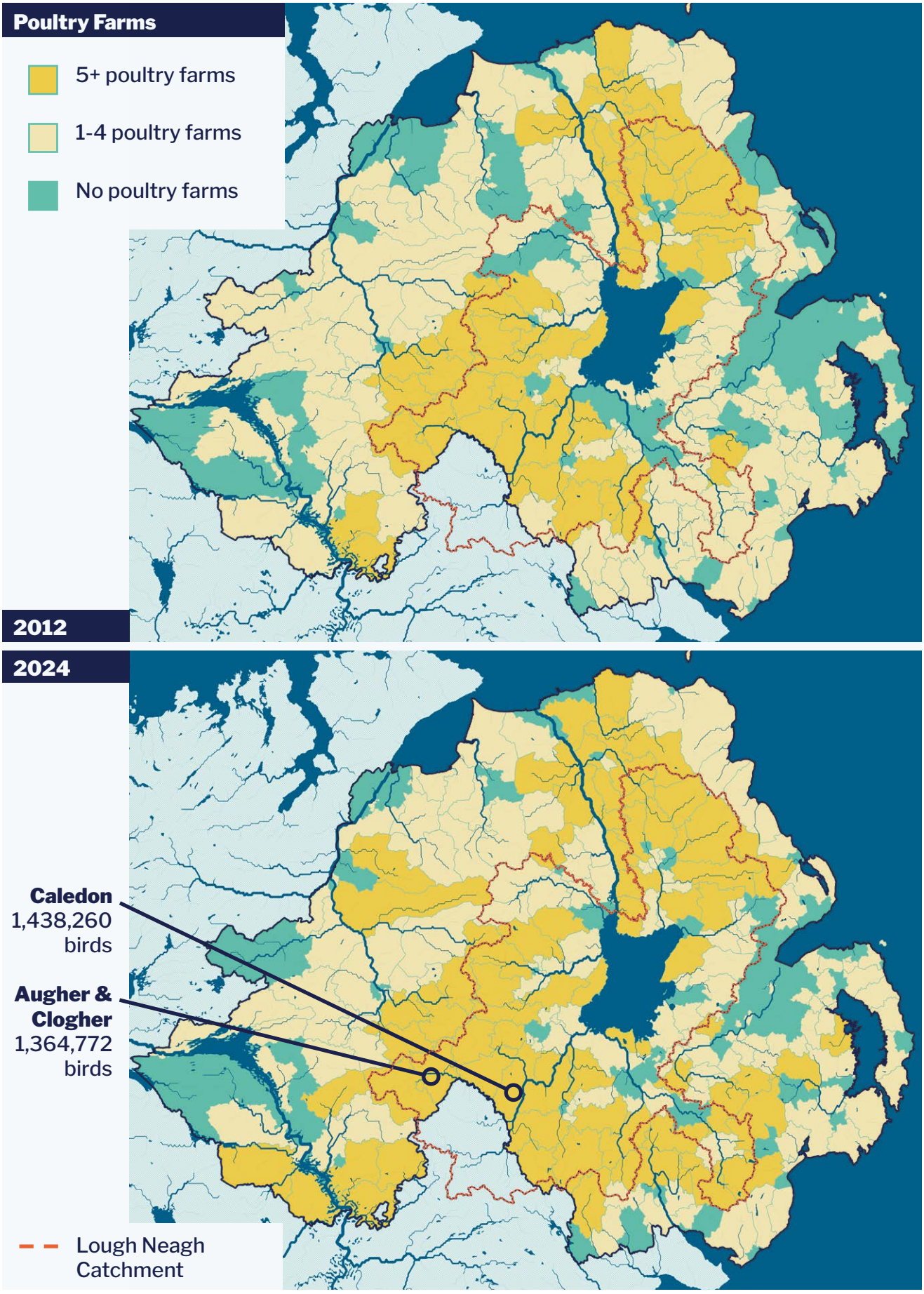
Farm census data* at ward scale indicates the structure and spread of poultry farming across Northern Ireland. While the data included population figures, these numbers were suppressed for wards that had between 1 and 4 farms, making a detailed population study difficult. Instead, this suppression can be used to identify wards with no farms, 1-4 farms and more than 5 farms.

In 2024, two wards in County Tyrone were home to over a million birds: Caledon with 1,438,260 and Augher & Clogher with 1,364,772. Both of these wards are within the Lough Neagh catchment. 7 wards (including the above) had over 500,000 poultry, 4 wards were in Tyrone, two in Antrim and one in Armagh.

52% of wards contain poultry farms, with 18% (of the total) home to more than 5 poultry farms. More wards in the Lough Neagh catchment, 65% contain poultry farms than outside of the catchment, where 47% have farms. More wards are hotspots for poultry farming within the catchment, with 30% of wards having more than 5 farms, compared to 14% outside.

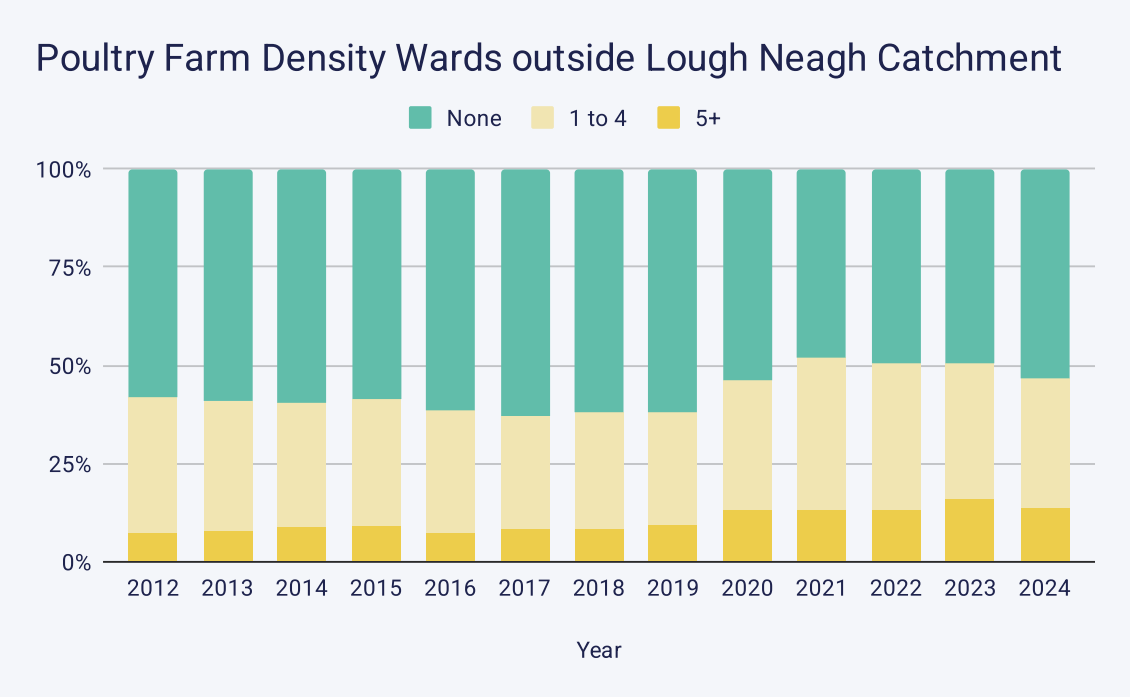
The number of wards in Northern Ireland with no farms fell by 5 percentage points (pp) between 2012 and 2024. The number with 5+ farms increased by 5 pp, while the share of wards with 1-5 farms remained consistent. This supports a growth of the industry, with an increase in the number of farms, alongside an increase in overall poultry population.





**The dataset was obtained via environmental information request as the open dataset was incomplete. As with previous census figures, this is a snapshot in time rather than the population over the duration of a year.*

Inside the Lough Neagh catchment, there were 4 pp less wards with no farms, while wards with either 1-4 or 5+ farms increased by 2 pp each. Outside of the Lough Neagh catchment, the share of wards with no farms or 1-4 poultry farms both reduced, by 5 pp and 1 pp respectively. The wards with 5+ poultry farms increased by 6 pp.



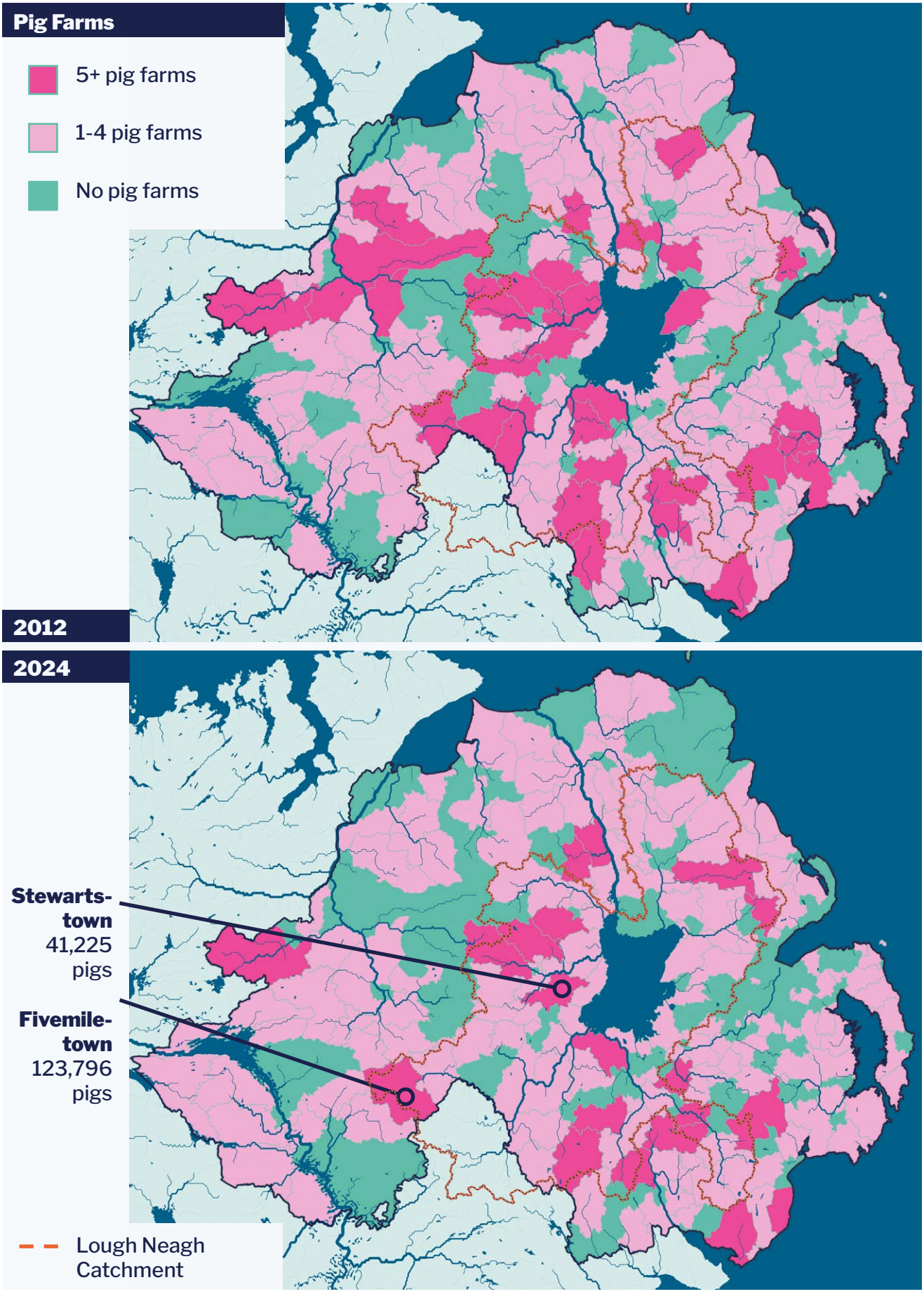
Pig Farms at Ward Level:

Fivemiletown in County Tyrone had the most pigs in 2024, at 123,796. This is more than the next ten most populous wards combined. The ward with the second most pigs was Stewartstown (Mid Ulster) with 41,225, also located in County Tyrone and the only other ward with more than 20,000 pigs. Both wards are within the Lough Neagh catchment.

42% of Northern Irish wards contain pig farms, the majority of these (37% of the total) house 1-4 pig farms. More wards within the Lough Neagh catchment contain pig farms than in all other catchments, 53% compared to 37%. Almost half, 42%, of wards in the Lough Neagh catchment contain 1-4 pig farms. In the rest of Northern Ireland, 34% of wards have 1-4 pig farms.

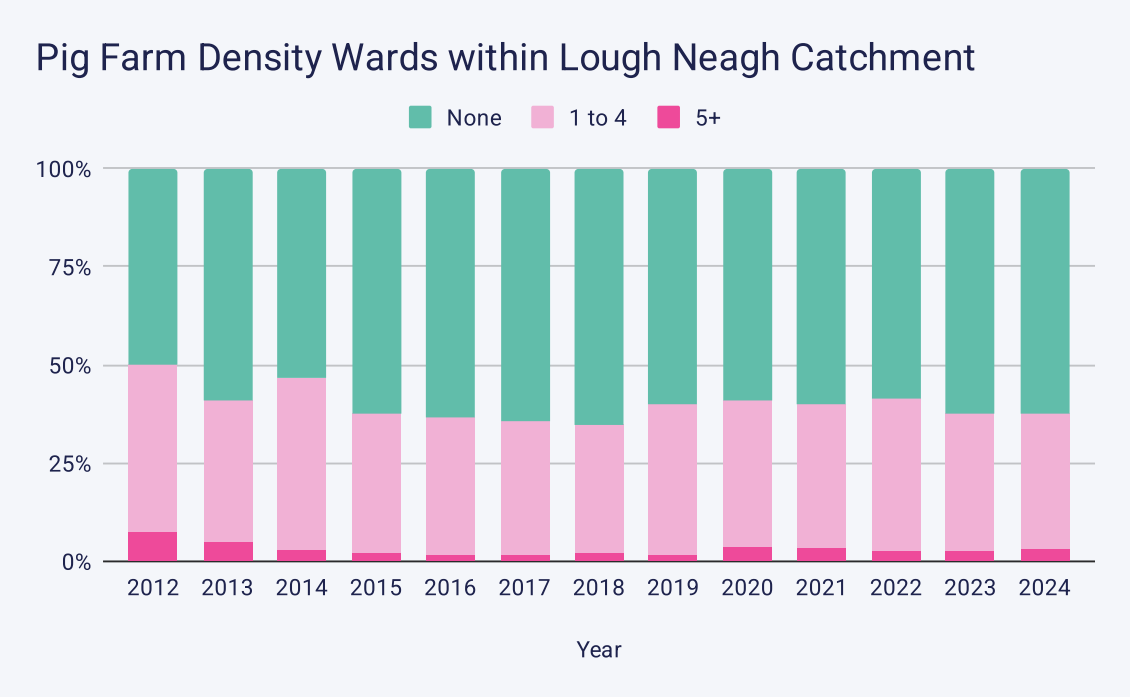
Across Northern Ireland, the number of wards with no pig farms increased by 10 percentage points (pp), while the number of wards with 1-4 or 5+ pig farms both decreased by 5 pp. This may indicate a consolidation of the industry, with a reduction in farm numbers, clustered in similar areas, while the overall pig population has increased.

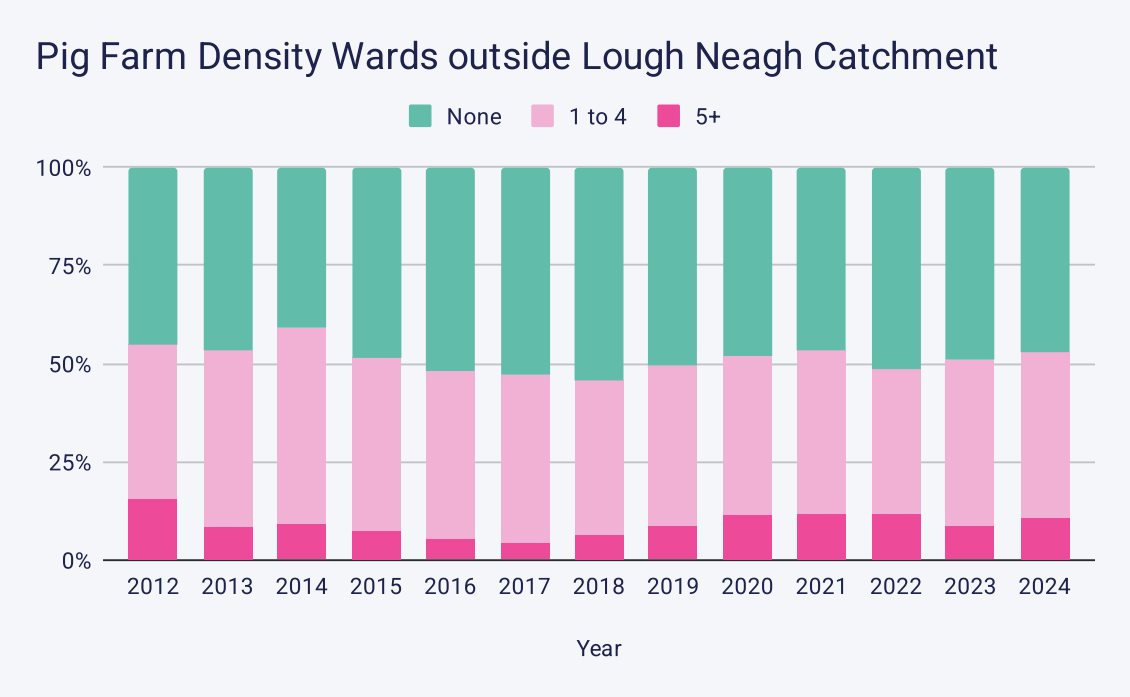
Within the Lough Neagh catchment, the number of wards with 5+ pig farms fell sharply, by 24 pp. The wards with 1-4 pig farms or no pig farms increased by 12 pp each. In all other catchments, the wards with no farms increased by 13 pd, while 1-4 farms fell by 8 pp and 5+ farms by 4pp.


Pig Farms
5+ pig farms
1-4 pig farms
No pig farms
2012
2024
Stewarts-town
41,225
pigs
Fivemile-town
123,796
pigs
Lough Neagh Catchment

Across Northern Ireland, the number of wards with no pig farms increased by 10 percentage points (pp), while the number of wards with 1-4 or 5+ pig farms both decreased by 5 pp. This may indicate a consolidation of the industry, with a reduction in farm numbers, clustered in similar areas, while the overall pig population has increased.

Within the Lough Neagh catchment, the number of wards with 5+ pig farms fell sharply, by 24 pp. The wards with 1-4 pig farms or no pig farms increased by 12 pp each. In all other catchments, the wards with no farms increased by 13 pd, while 1-4 farms fell by 8 pp and 5+ farms by 4pp.





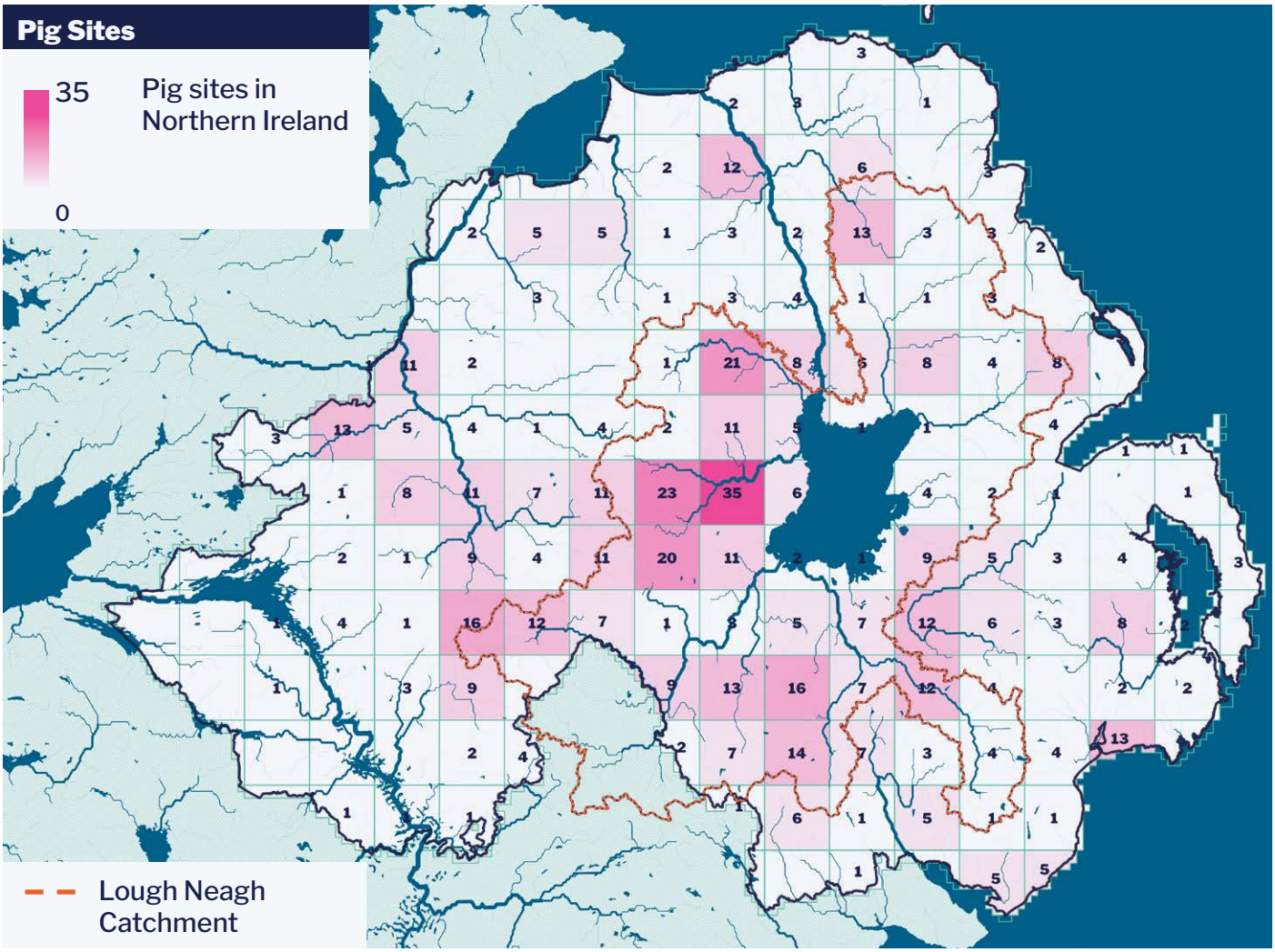
Pig Farms at 10km x 10km Grid Squares:

In response to our FOI request, DAERA provided a list of anonymised pig holdings with four digit coordinates, corresponding to the 10x10km grid below.

Grid squares within the Lough Neagh catchment have an average of 7 holdings, compared to an average of 2 holdings per square in all other catchment areas. When calculated by area, which accounts for incomplete squares on the coastline, there are 8 holdings per 10km² inside the Lough Neagh catchment and 3 holdings per 10x10km outside. Grid squares with an overlap of 50% or more overlap with the orange catchment boundary above were included in the Lough Neagh average.

Pig farms are recorded in a variety of formats, such as holdings and sites. As holdings may have more than one site, we asked DAERA for a list of site locations. A spokesperson said:

> "The Department cannot provide postcodes for the individual sites as they are recorded on NIFAIS as 'Other Holdings' in free text format, and their geographical location recorded as a set of X/Y coordinates in the WKID 29900 format. The Department have attached Annex C which includes an anonymised list of holding codes and the first 2 digits of the X and Y coordinates of each physical site registered as part of that holding. This will enable you to locate each site to within a 10km x 10km square." (Moore 2026)



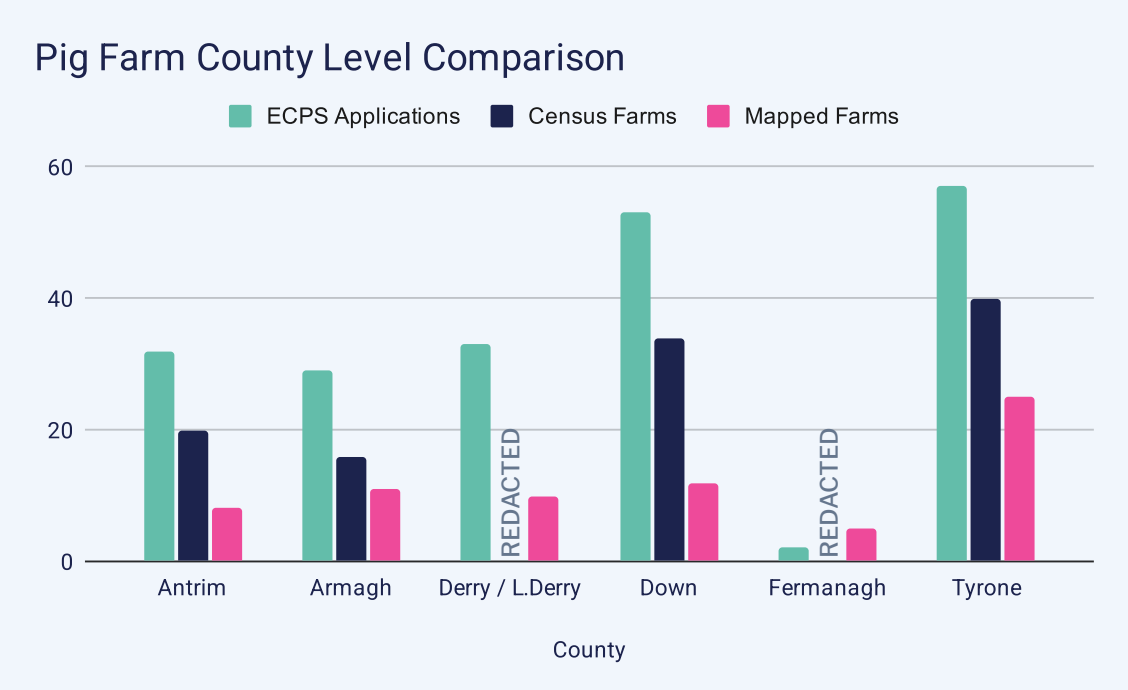
Mapping Pigs through Environmental Information Requests:

In 2020 and 2022, DAERA announced two rounds of compensation for farmers affected by slaughterhouse closures due to Covid-19 and 'increasing input costs' (DAERA 2023a). £4 million was offered in the 2020 Covid-19 scheme and £1.6 million in the second 2022 'exceptional costs' scheme, with both announced or directed by Edwin Poots.

While Covid-19 funding was offered to both poultry and pig producers, the latter "must have supplied pigs to Cranswick Country Foods Ltd between 4 September and 7 November 2020" (DAERA 2021). The 2022 'Exceptional Costs Pig Scheme' (ECPS) was open to pig producers who supplied "Cranswick Country Foods, Karro Food Group Limited and William Grant & Co Ltd" slaughterhouses between "1 April 2022 – 30 June 2022".

These schemes provided a potential method for further mapping of pig farms, and of Karro and Cranswick supply chains (detailed in pages 118 to 121). We submitted EIR requests to DAERA for farm business names, addresses or postcodes, which slaughterhouse the farm supplied and if they received compensation. As this was mostly redacted, we sent additional EIR requests for this information aggregated by postcode district and county (DAERA 2025c, 2025d, 2025e, 2025f). Please see page 121 for a map of ECPS pig population density.

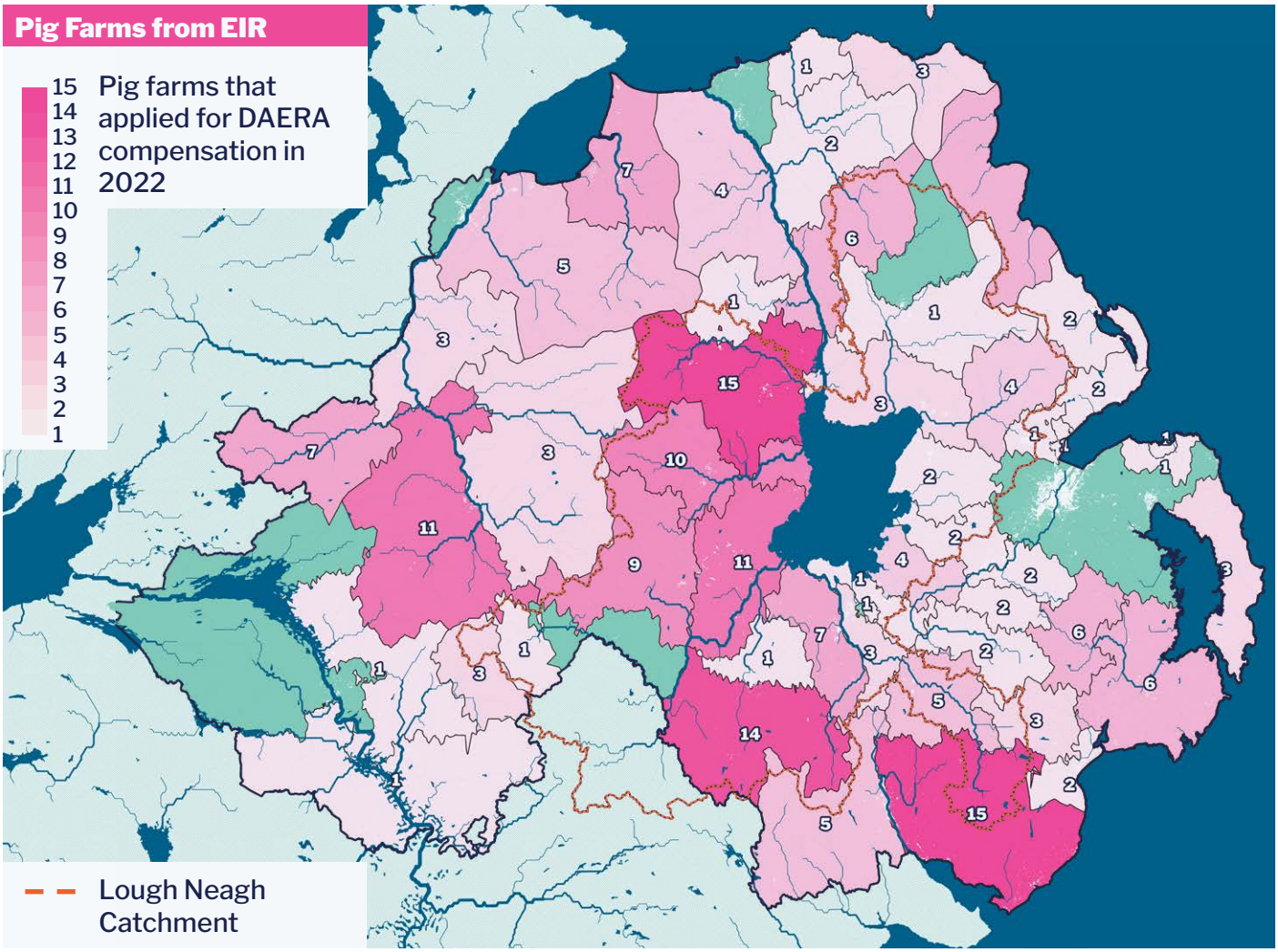
The number of farms returned by DAERA exceed the farms we found through planning application portals and DEFRA permit records. 135 more farms were listed than found by this study. The number of specialist pig farms listed in the Agricultural Census exceed the number of approved planning applications by 72 farms. This discrepancy could be due to inconsistencies in the planning application portal search function, in the formatting or description of pig planning applications, or indicate pig farms operating without a planning application. The total number of farms keeping pigs listed in the Agricultural Census is higher than ECPS applications, at 403. The total population of pigs in the Agricultural Census is higher than ECPS farms that received funding, at 744,858 compared to 382,413.



County	ECPS Farm Business Applications	Ag. Census Pig Farms (Specialist)	All Approved Planning Applications	Intensive Permits	Total Mapped Farms*
Antrim	32	20	7	4	8
Armagh	29	16	11	3	11
Derry/ Londonderry	33	Redacted	10	0	10
Down	53	34	11	3	12
Fermanagh	2	Redacted	5	0	5
Tyrone	57	40	25	4	25
Total	206	141	69	14	71

**After cross-referencing planning applications to intensive permits to avoid double counting.*

We asked DAERA if planning permission status is checked or requested in farm applications for other schemes, like the ECPS or for intensive permits. We also asked DAERA if it is, or was, aware of any farms under consideration that did not have planning permission. DAERA declined to comment without reviewing the full report.



Poultry and Pig Farms in Northern Ireland

County	Poultry Farms	Pig Farms	Poultry	Pigs	Poultry Manure (t/day)	Pig Manure (t/day)
Antrim	186	8	7,362,300	23,900	666	145
Armagh	141	11	3,996,244	24,407	358	187
Derry/Londonderry	54	10	2,098,270	19,510	181	116
Down	89	12	2,770,500	30,574	250	207
Fermanagh	63	5	804,400	4,000	74	24
Tyrone	503	25	12,959,570	53,916	1,156	340
Total	1036	71	29,991,284	156,307	2,685	1,018

Planning Applications and Intensive Permits:

We reviewed planning applications and intensive permits to locate pig and poultry farms in greater spatial and temporal detail. While total figures vary compared to the official agriculture census and surveys, these sources provide a better indication of where farms are clustered and provide a basis for supply chain analysis.

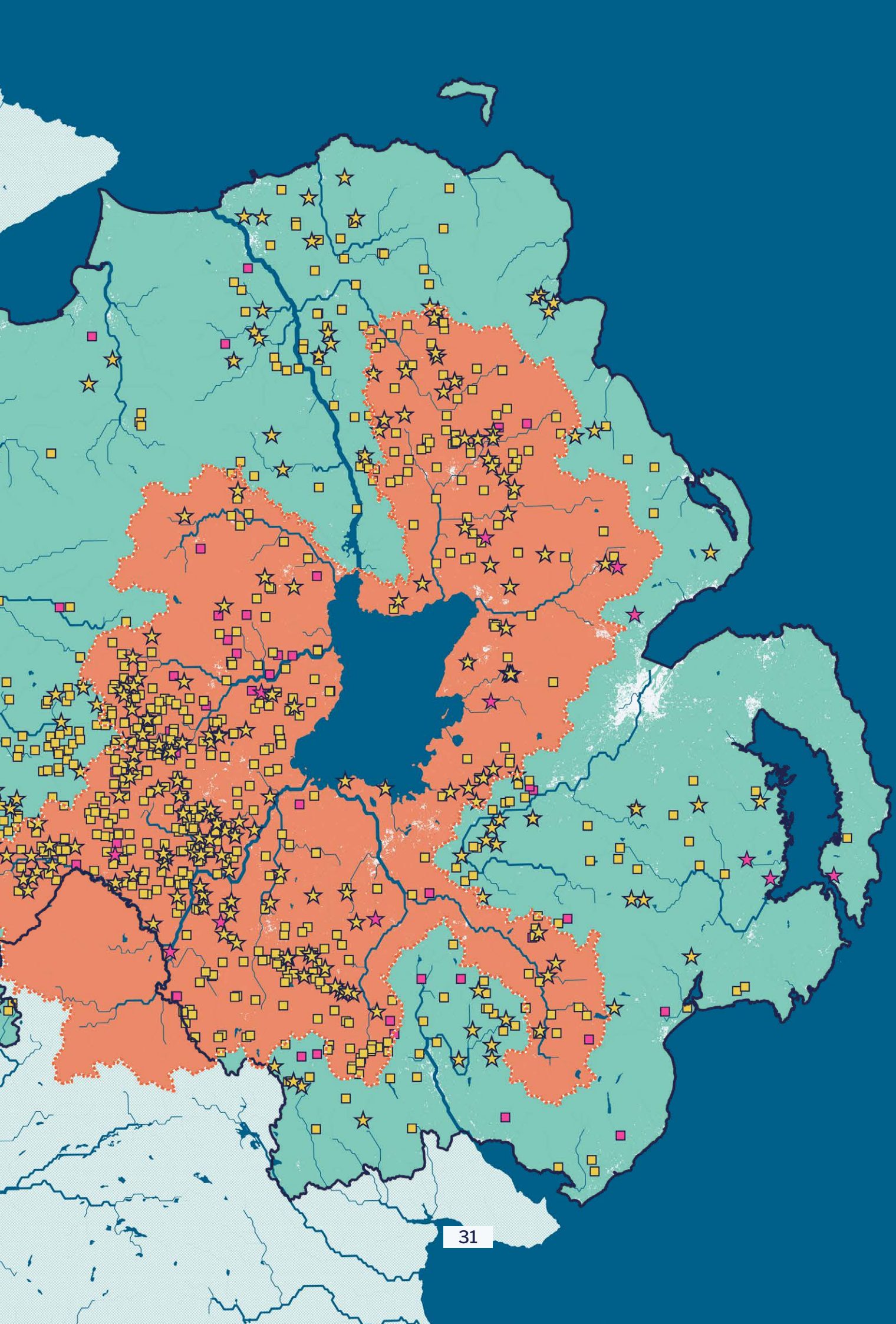
Poultry

- **Intensive Permit >40,000 Poultry**
- **Planning Application <40,000 Poultry**

Pigs

- **Intensive Permit >2000 Pigs >750 Sows**
- **Planning Application <2000 Pigs <750 Sows**

- **Lough Neagh Catchment**



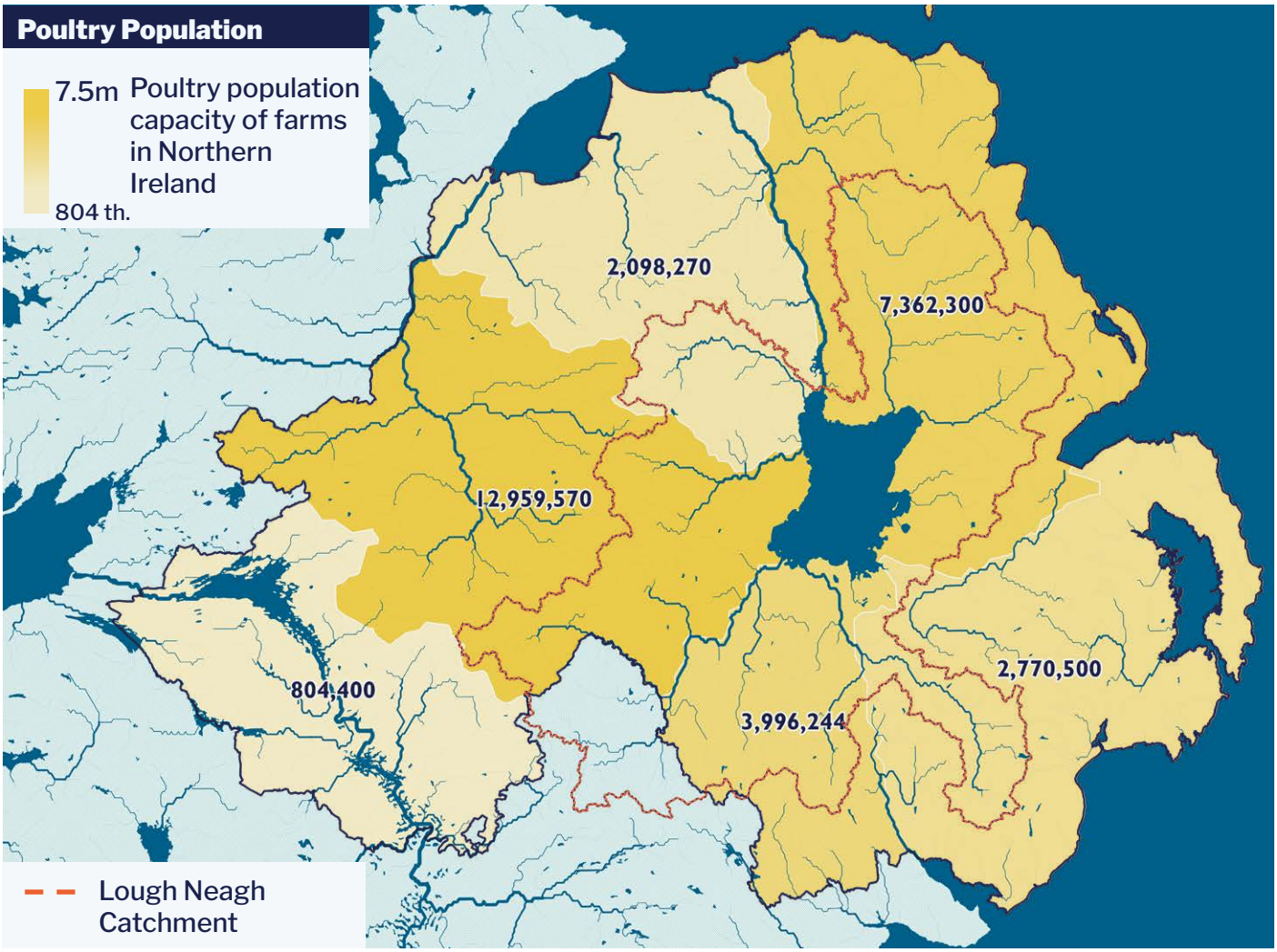
Planning Applications and Intensive Permit Data:

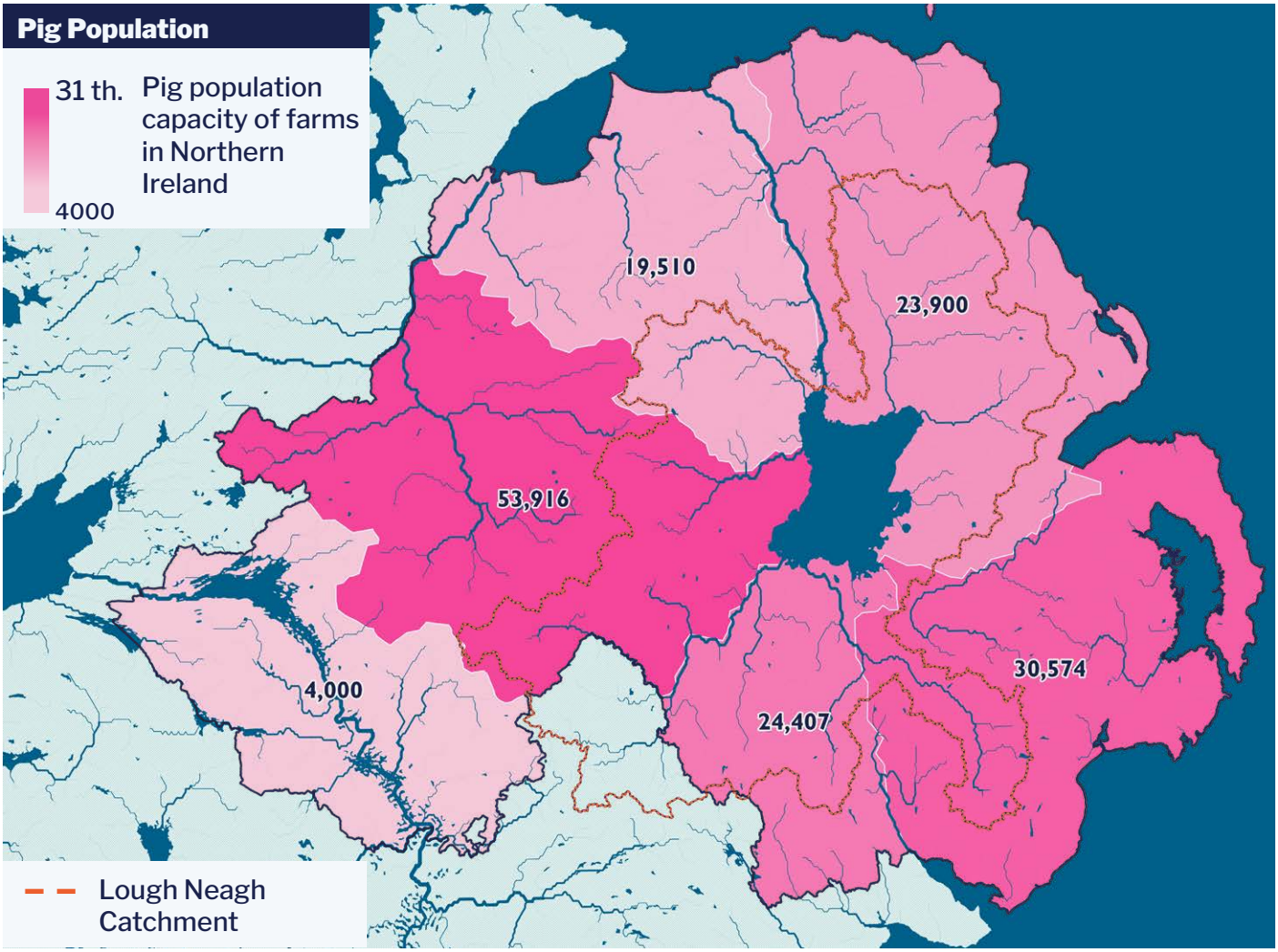
Individual farm locations were compiled from government intensive permit databases and Northern Irish planning portals (DEFRA 2024b; DAERA 2024e; NI Planning Portal 2025; Mid Ulster District Council 2025). We cross-referenced operator and location information to identify intensive permits and planning applications that related to the same farm site, minimising double counting of farms, livestock populations and subsequent manure estimations. This was necessary as each intensive permit ought to correspond to a planning application, while farm sites may have multiple applications as the farm is extended or altered over time.

How to use these pig and poultry statistics:

Please reference statistics on page 10 for the most accurate livestock numbers, or for the number of broilers and pigs across a year, pages 8 and 9. Official statistics on the number of poultry and pig farms vary. For all farms stocking pigs and poultry across NI, please reference the text on page 10. For county level breakdowns, the official statistics are more conservative, counting specialist pig and poultry farms, as in the table on page 10. This map draws on intensive permit and planning application data collated during this study, which differs from the number of farms recorded in the Agricultural Census.

County	Poultry per person	Pig % per person
Antrim	11	4
Armagh	21	13
Derry/Londonderry	8	8
Down	5	6
Fermanagh	13	6
Tyrone	69	29





Poultry and pig farm numbers, and population totals, vary compared to the official agricultural census and statistical reviews due to differences in what is recorded, and how, when compared to the planning and permitting systems. Our poultry population figure is larger than the 2024 June Census, however we do not know from planning applications if farms have ceased to operate - and not all farms will be stocked to capacity at all times. The pig number in the 2024 Census is much larger, likely due to inconsistency in pig planning application labelling, faulty planning application portal searches, or potentially pig farms that do not have planning permission. Information requested on DAERA pig sector funding schemes supports this higher number of farms, and have highlighted pig farms that do not appear in planning portal searches, and so may not have planning permission (DAERA 2025a; 2025d; 2025b; 2025c). Details on DAERA pig producer support schemes feature on page 28.

Poultry Farms	1036
Poultry Population	29,991,284
Poultry Manure (tonnes per day)	2,685
Pig Farms	71
Pig Population	156,307
Pig Manure (tonnes per day)	1,018

Intensive Poultry	20,986,444
Regular Poultry*	9,004,840
Intensive Pigs	96,165
Regular Pigs*	60,142

**Removed livestock population from planning applications linked to intensive permits to avoid double counting.*

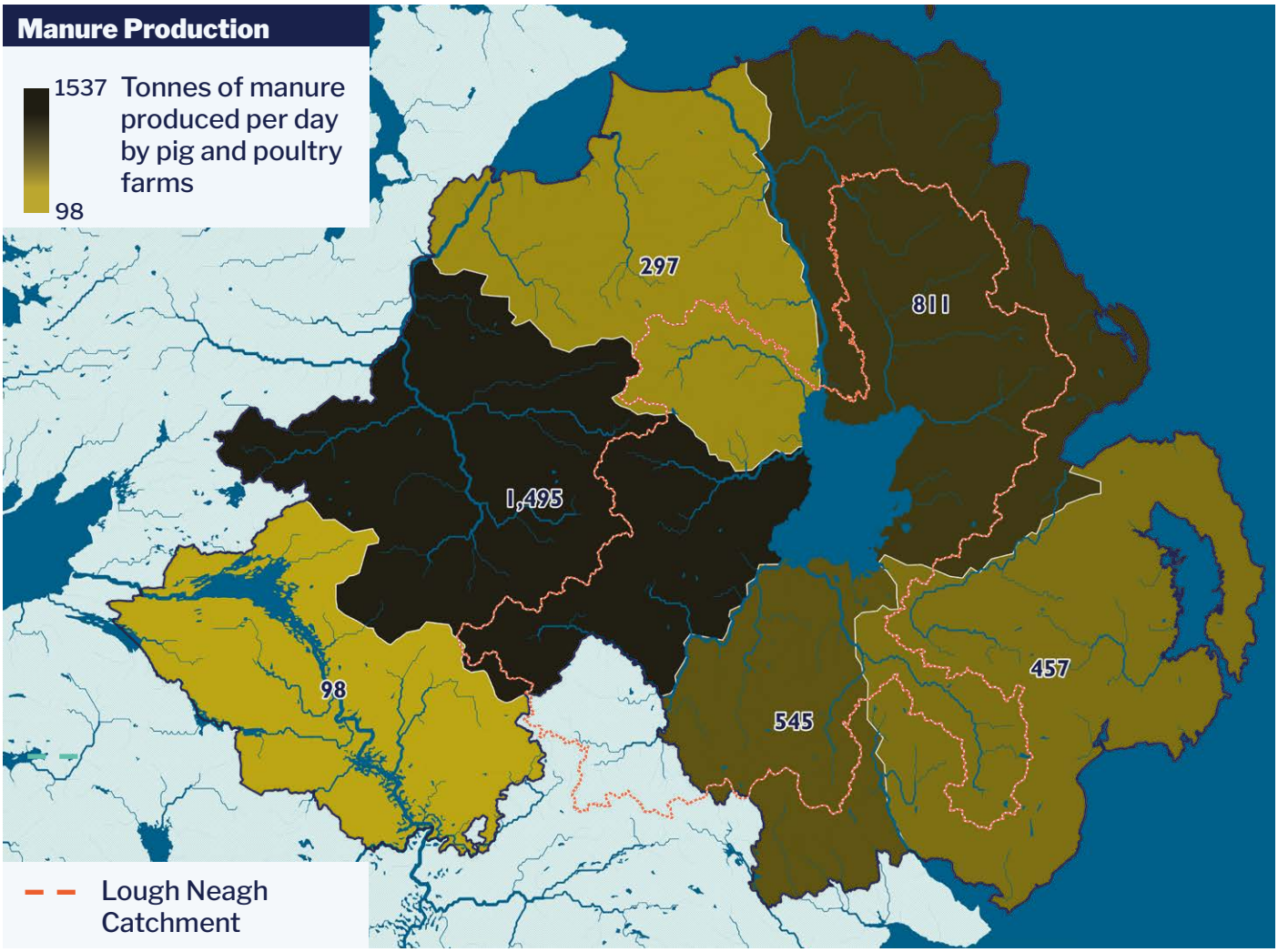
Manure Production:

These animals produce an estimated 3,704 tonnes of manure per day, 2,685 and 1,018 for poultry and for pigs respectively.

County Tyrone has the highest share of both total poultry manure and total pig manure, at 43% and 33% respectively. County Antrim ranks second for poultry with 25% and County Down for pigs at 20%.

How to use these pig and poultry statistics:

Please reference manure estimations on pages 18 to 19 for more accurate statistics on the annual production of manure from poultry and pigs across Northern Ireland. This map draws on intensive permit and planning application data collated during this study, which differs from the number of farms recorded in the Agricultural Census. Pig farm numbers are reduced, as discussed on page 28, and poultry farms slightly increased. This map estimates daily production as a spatial snapshot, while the Northern Ireland headline statistics tables on pages 8 and 9 account for stocking cycles annually.



This is almost double previous estimations published by Friends of the Earth as Muck Maps, which studied the spread of manure from factory farms across the UK (Sustain, Materiality, Compassion In World Farming, et al. 2024). This is due primarily to the inclusion of planning application data, which captured below permit threshold farms, whereas Muck Maps was limited to intensive permit data. This report calculates that 36% more poultry litter and 74% more pig manure is produced when farms below the permit threshold are included, and including updates to intensive permit data from DAERA.

Definitions

Application refers to an individual full planning application for either a poultry or pig farm building(s). Full applications have reference numbers that end in /F or without any suffix. Applications with other suffixes, e.g /PAN, which means Proposal of Application Notice, have been removed from statistics, charts and maps.

Farm refers to the site of poultry or pig buildings. A farm may have multiple applications related to the site as the buildings and facilities have been modified over time.

Permissions are applications that have been granted. This does not guarantee that the buildings were built, or that the full livestock population applied for will have been met. Verifying all permissions with satellite imagery was beyond the scope of this project. Applications that were missing decision information (e.g granted or rejected) were cross referenced with satellite imagery and marked as approved if livestock sheds were present.

Totalled permission refers to the most recently approved planning application for a farm site, where the livestock capacity has been cross-referenced with previous permissions for the same site. While some planning applications include cumulative totals of livestock population that take into account existing farm buildings, most do not. Permissions were linked to the same farm site by a combination of applicant name, address or spatial proximity. Totalled permissions include the livestock populations from older applications, taking into account replacement, demolition and other situations where livestock could be double counted. Statistics, charts and maps relating to totalled permissions contain the cumulative poultry or pig capacity of the applications related to the farm site. Links to Pilgrim's Europe (Moy Park), Cranswick or Karro in previous applications have been carried forward to the latest application, and therefore to the totalled permission.

Intensive Permits are required for farms with capacity for more than 40,000 poultry, 2000 pigs, or 750 sows (DAERA 2025g). Planning applications have been linked to Intensive Permits by site location and the operator. Planning applications have not been found for all intensive permits. Links to Pilgrim's Europe (Moy Park), Cranswick or Karro in intensive permits have been carried forward to the latest application, and therefore to the current farm.

Main Methods

Open source investigation, also known as ***OSINT*** or open source intelligence, is a process of desk-based research to find and analyse publicly available sources. Sources can include datasets, documents, images and more. These are often found through advanced search engine methods or automated search processes. Visual evidence such as photographs and satellite imagery is often used, sourced and cross-referenced through methods such as Google Streetview and reverse image searches. This investigation, for example, searched planning portals and public planning application information for key words, reviewed company and industry press and publications, and sourced government datasets where available.

GIS stands for ***Geographic information System***, and is used to layer maps and data for analysis. Techniques include counting the number of farms within an area, or calculating the total or average number of livestock within the farms. This investigation used QGIS to organise information, analyse data and produce maps for publication.

Lough Neagh Catchment Area Summary:

The majority of Northern Irish pig and poultry farms found by this study are within the Lough Neagh catchment area. **62% of poultry farms and 55% of pig farms are inside the Lough Neagh catchment. When looking at population, 64% of poultry and 61% of pigs are inside the catchment area.** We have estimated that 64% of Northern Irish poultry manure and 62% of pig manure is produced within the Neagh catchment.

Northern Ireland	Inside Lough Neagh Catchment (NI only)	% of NI Total	Outside Lough Neagh Catchment (NI only)	% of NI Total
Poultry Farms	646	62	390	38
Poultry Population	19,273,140	64	10,718,144	36
Pig Farms	39	55	32	45
Pig Population	96,086	61	60,221	39

Planning Applications Breakdown:

There are more ***totalled permissions**** (please see definition of totalled permission on preceding page) within the Lough Neagh catchment area than outside, housing 61% of poultry and 74% of pigs. This trend is matched by manure production, with 61% and 77% of the Northern Irish total manure for poultry and pigs respectively.

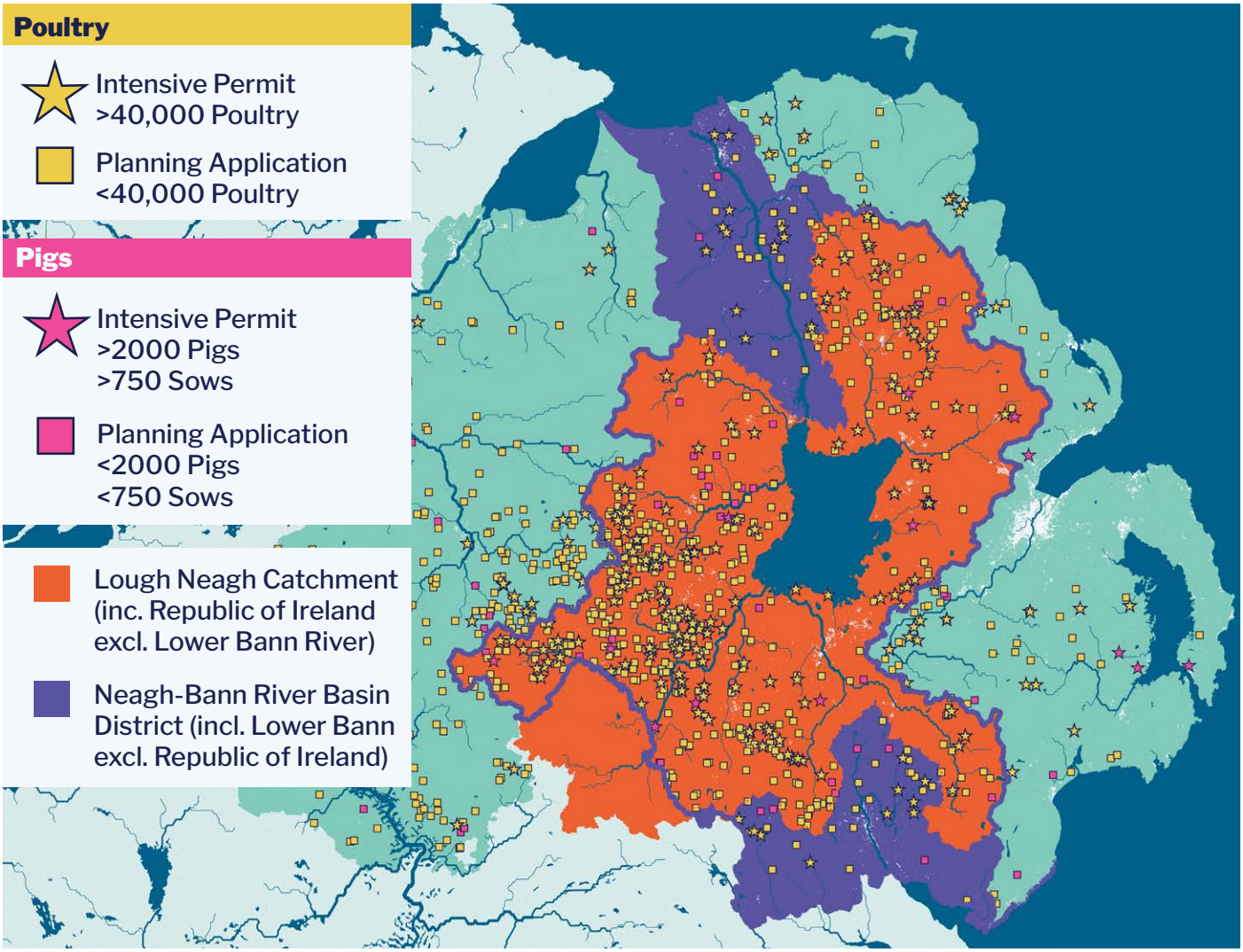
Intensive Permit Breakdown:

The majority of ***intensive farms**** (intensive permits) are sited within the Lough Neagh catchment, housing 69% and 56% of poultry and pigs respectively. More manure is produced by intensive permits within the catchment, 69% of poultry manure and 58% of pig manure.

The Lough Neagh catchment area extends across the border into one county in the Republic of Ireland. 31% of County Monaghan is land that drains into Lough Neagh. The table below compares the proportion of farms within the Lough Neagh catchment on the Northern and Southern sides of the border. The table right compares the number of farms within County Monaghan that are on Lough Neagh catchment area land or not.

Lough Neagh Catchment	NI Lough Neagh Catchment	% of Neagh Total	ROI Lough Neagh Catchment	% of Neagh Total
Poultry Totalled Permissions*	619	81	143	19
Poultry Intensive Permits*	139	70	60	30
Pig Totalled Permissions*	37	77	11	23
Pig Intensive Permits*	9	82	2	18

**Statistics on farms in the first paragraph include planning applications and intensive permits, taking into account those on the same farm site to avoid double-counting. Planning applications (totalled permissions) figure does not include intensive permits but takes into account planning applications for the same farm site. Intensive permit figures do not include planning applications. Please see definitions on preceding page. Insufficient data on livestock per farm in Monaghan to compare to Northern Ireland on a population basis.*



County Monaghan	Inside Lough Neagh Catchment	% of County Total	Outside Lough Neagh Catchment	% of County Total
Poultry Farms	201	40	303	60
Pig Farms	12	43	16	57

The map above compares the Lough Neagh catchment area to the Lough Neagh river basin area. The Lough Neagh catchment area (orange) includes only the areas where rivers flow into the Lough. The Neagh-Bann River Basin includes the orange area, but for analysis purposes we have clipped it to the border. The purple areas and the orange areas within the purple line belong to the river basin. This includes areas like the Lower Bann (northern most purple patch) which flows out from the Lough to the sea.

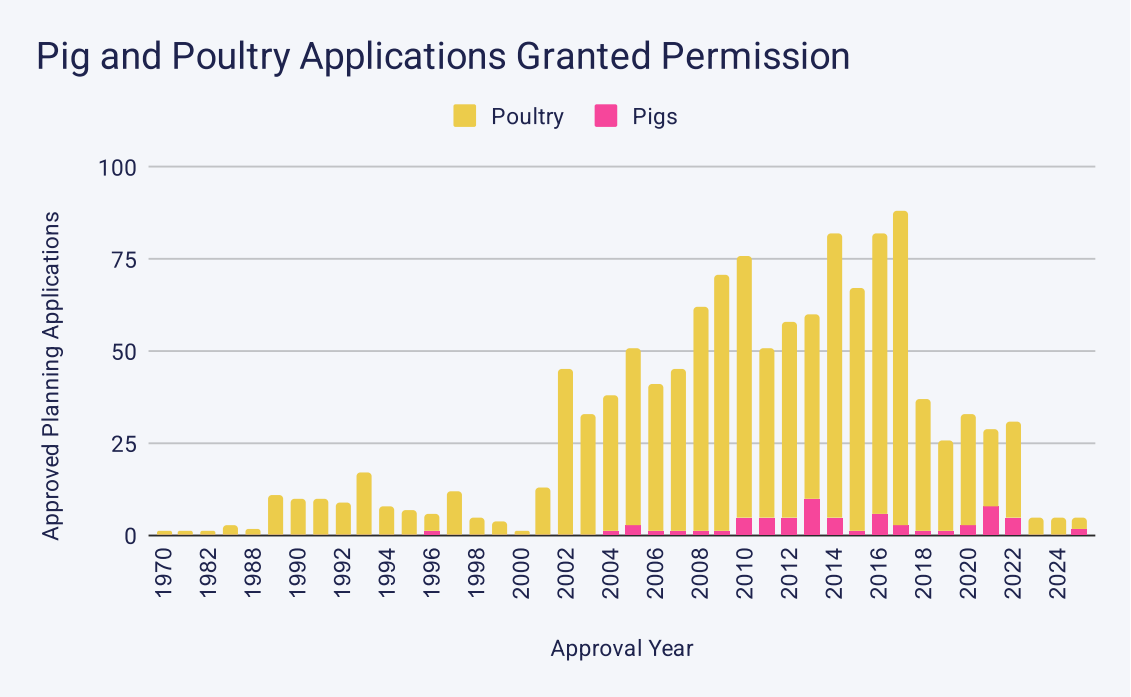
River Basin	Neagh-Bann River Basin* (NI only)	% of NI Total
Poultry Farms**	726	70
Poultry Population	22,390,034	75
Pig Farms	48	68
Pig Population	101,798	65

**Neagh Bann totals calculated separately to Lough Neagh catchment inside and outside, but including the Northern Irish section of the Lough Neagh catchment area that falls within the river basin district.*
***Farm statistics calculated after cross-referencing intensive permits with corresponding planning applications to avoid double counting farms. Removed livestock population from planning applications linked to intensive permits to avoid double counting.*

Mapping Planning Applications:

Our searches of Northern Ireland and the Mid Ulster planning portals returned 1173 poultry applications and 69 pig applications, after irrelevant results were filtered out. We searched for the key terms bird, broiler, chicken, poultry and pig. These terms were derived from analysing the most frequently used words in existing records of poultry and pig planning applications, alongside knowledge of terms from previous research projects. Examples of irrelevant results were pigeon coops or wind turbine applications for poultry farms. Application locations were identified and copied from interactive maps on each application page.

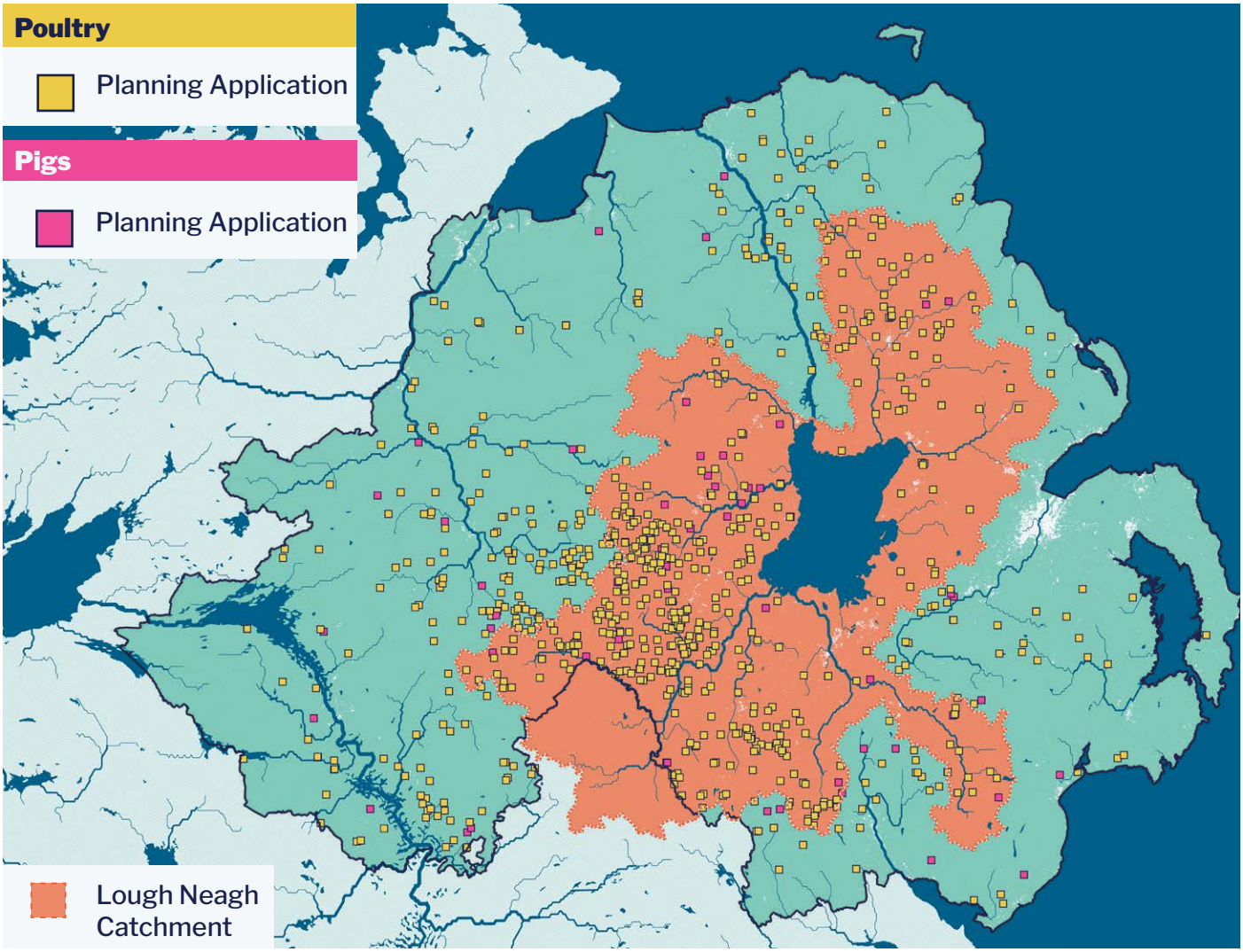
The year with the most poultry applications approved was 2017 with 85 permissions granted, while 2013 had the most pig farms approved at 10 farms.



Applications were analysed to link those connected to the same farm, and calculate the current livestock capacity limit granted planning permission. We found 992 poultry and 67 pig application sites (totalled permissions).

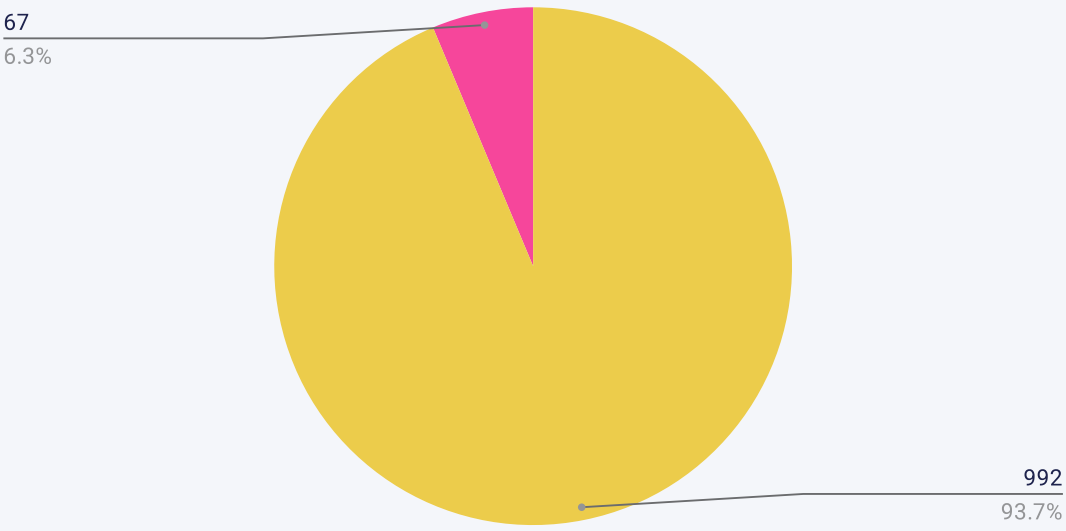
Totalled permissions could contain up to 19,679,890 poultry and 69,787 pigs.

It was not possible to find a livestock population number on the planning application pages for 452 applications. While this number may be listed in application documents, it was beyond the scope of this study to systematically search for numbers in planning application documents.



Pig and Poultry Farms (Totalled Permissions)

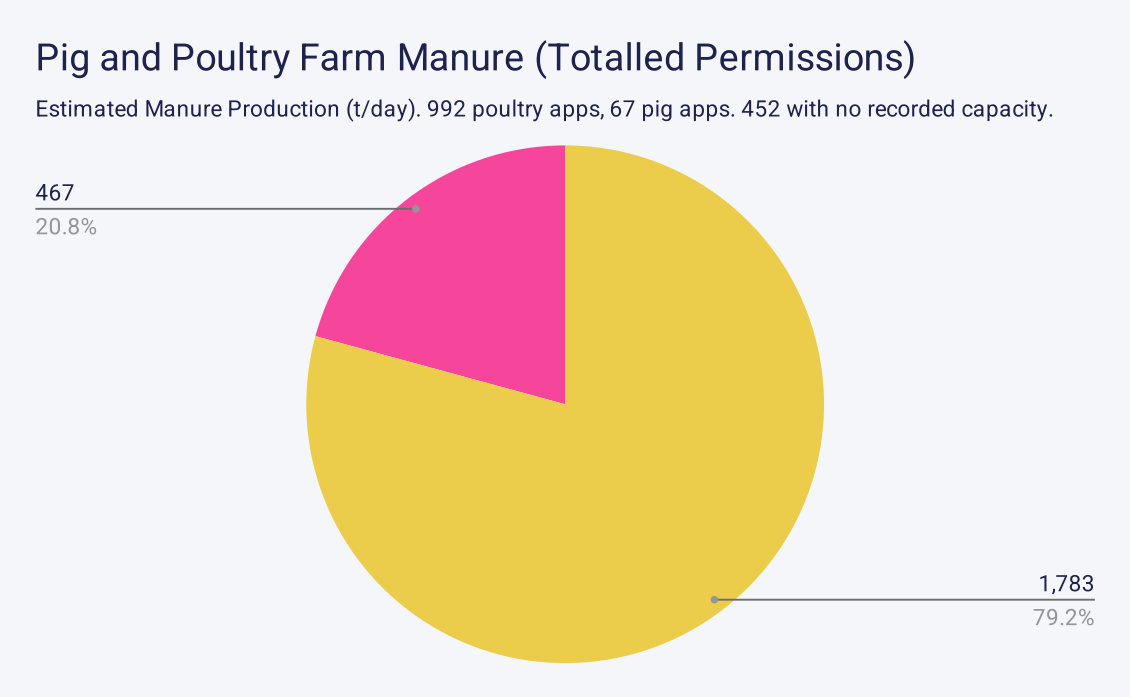
Applications Granted Permission

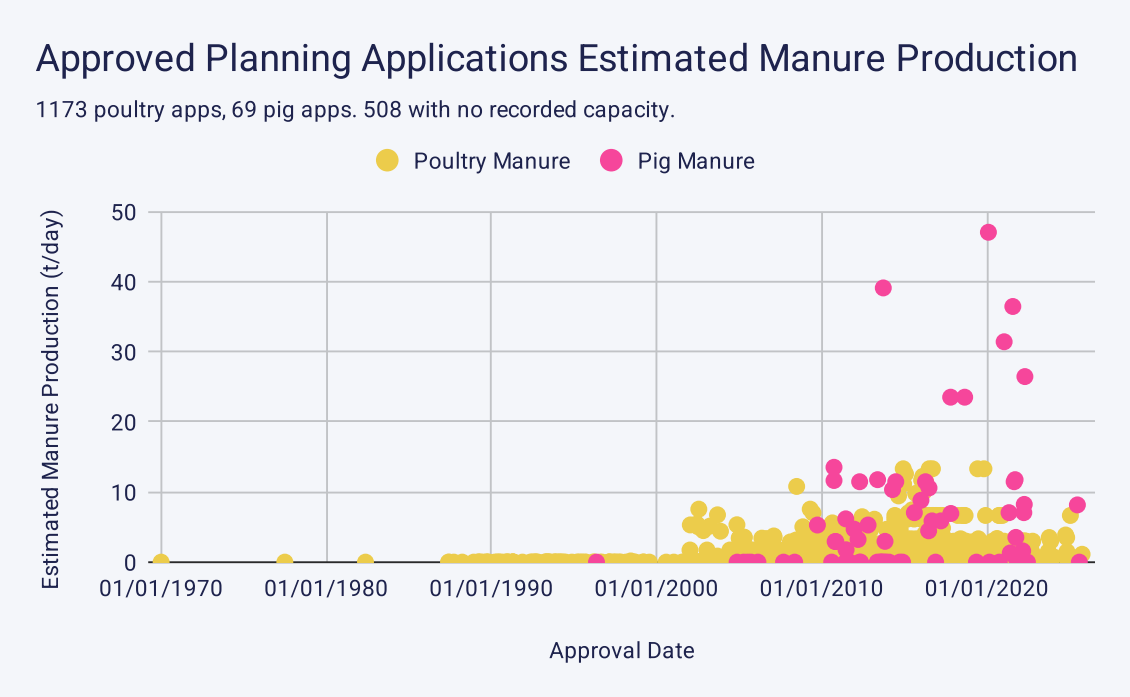


Manure Production:

Manure production was estimated using a methodology developed by Sustain and Materiality during the Muck Maps project, based on a DEFRA-commissioned study into manure mapping (Materiality et al. 2024; ADAS and North Wyke Research 2008).

The totalled poultry permissions could produce up to 1,783 tonnes of manure per day, while totalled pig permissions could contribute 467 tonnes.

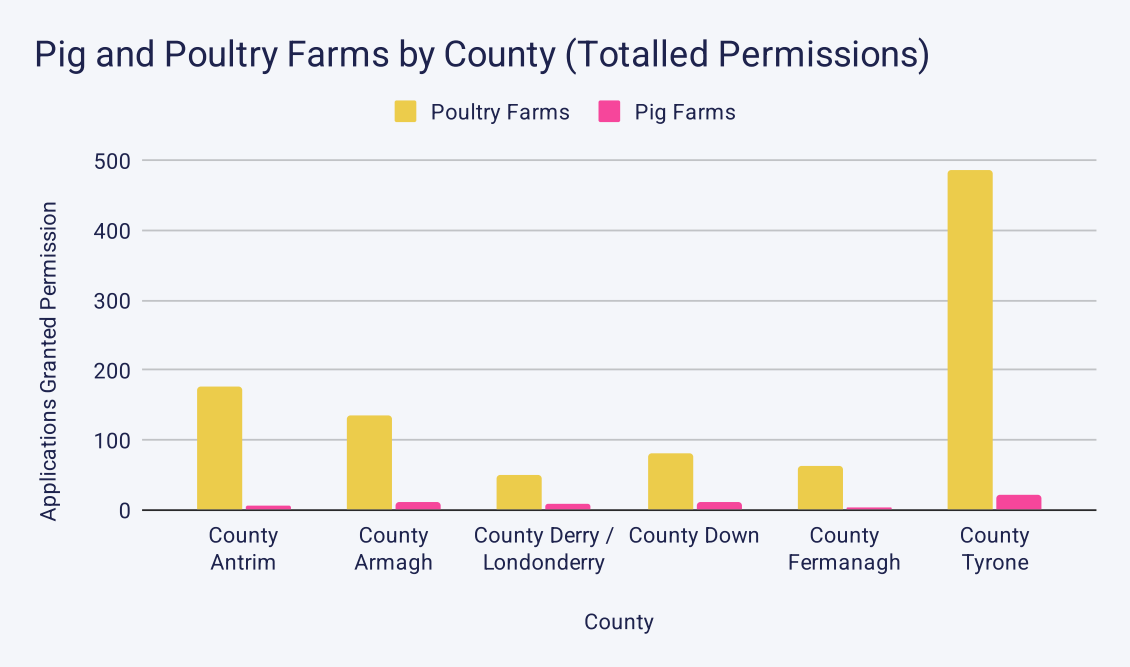


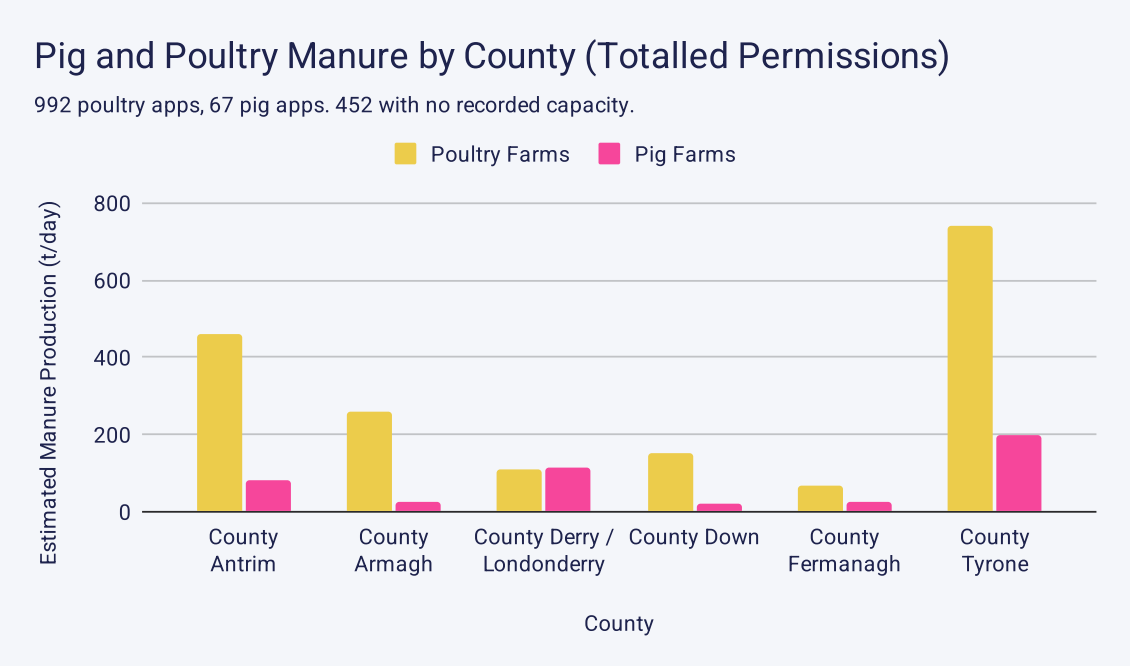


County Breakdown:

County Tyrone has the most poultry and pig totalled permissions, at 487 and 23, and the most poultry and pig manure production. These planning applications indicate that County Tyrone may have the capacity to house 8,107,470 birds at one time, which may produce 739 tonnes of manure per day. Pig capacity found through totalled permissions is 33,666, and estimated manure production of 200 tonnes per day.

County Derry/Londonderry has the second highest capacity for housing pigs, with estimated manure production higher than poultry manure, at 116 for pigs compared to 110 tonnes per day for poultry. County Antrim ranks second for poultry with 5,047,450 birds, and County Armagh third with 2,880,200. These counties may produce 452 and 257 tonnes of manure per day respectively.

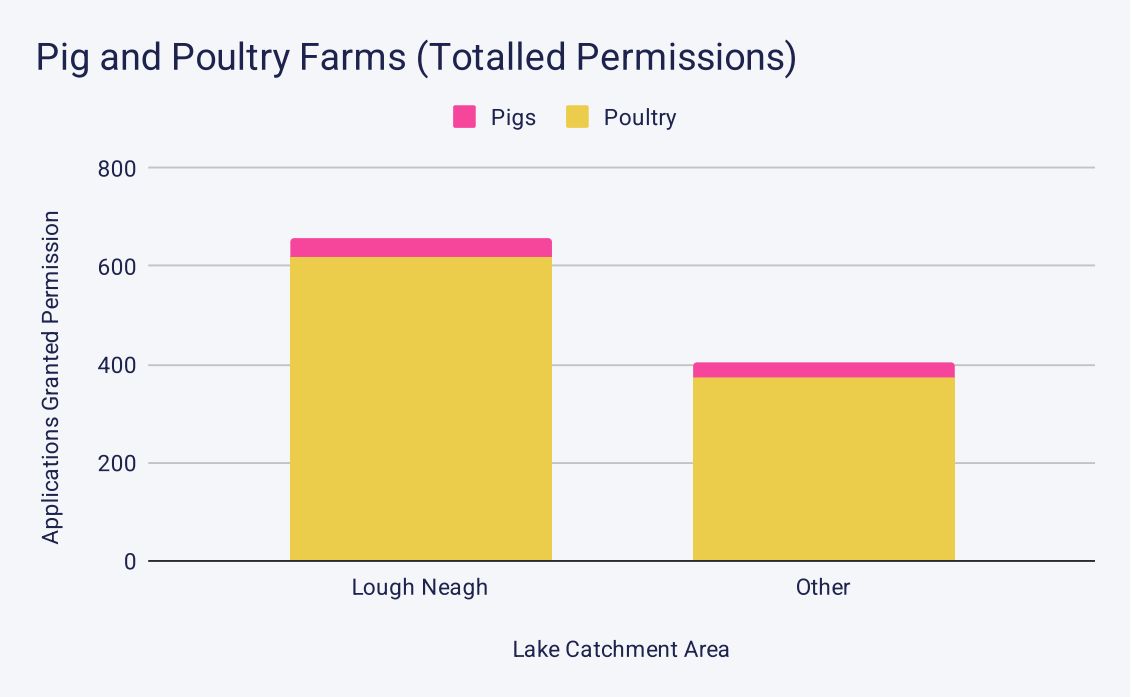


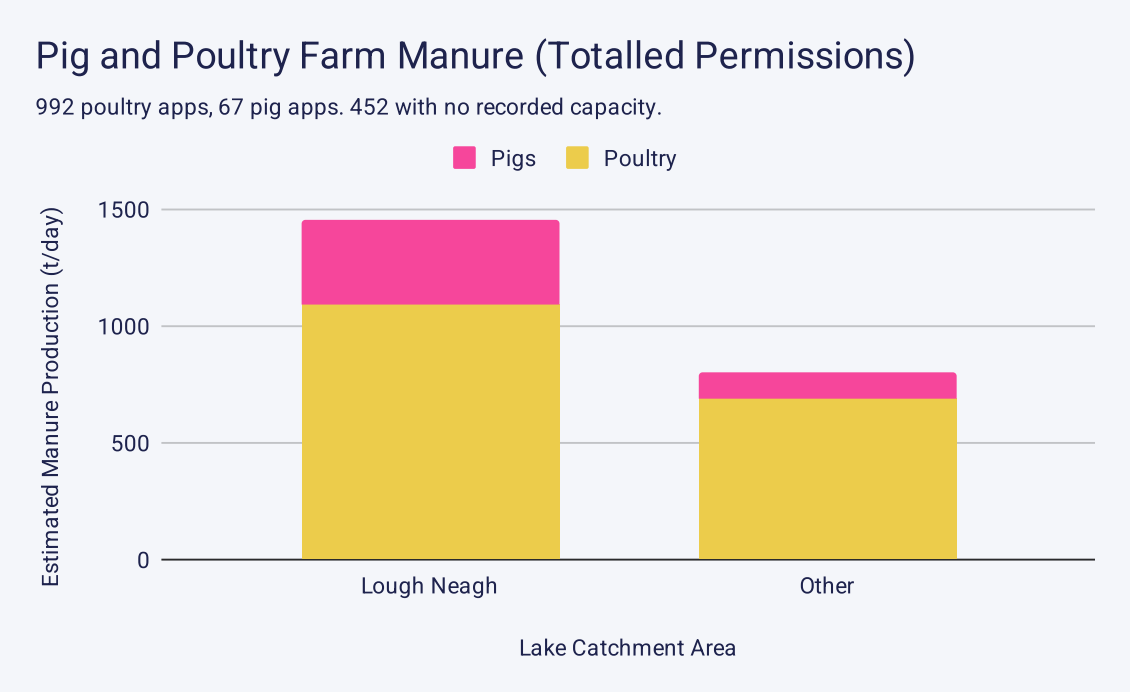


Lough Neagh Catchment Area:

There are more totalled permissions within the Lough Neagh catchment area than outside, housing 61% of poultry and 74% of pigs.

This trend is matched by manure production: poultry and pigs raised within the catchment area account for 61% and 77% of total Northern Irish manure production respectively.





Going for Growth Broiler Case Study:

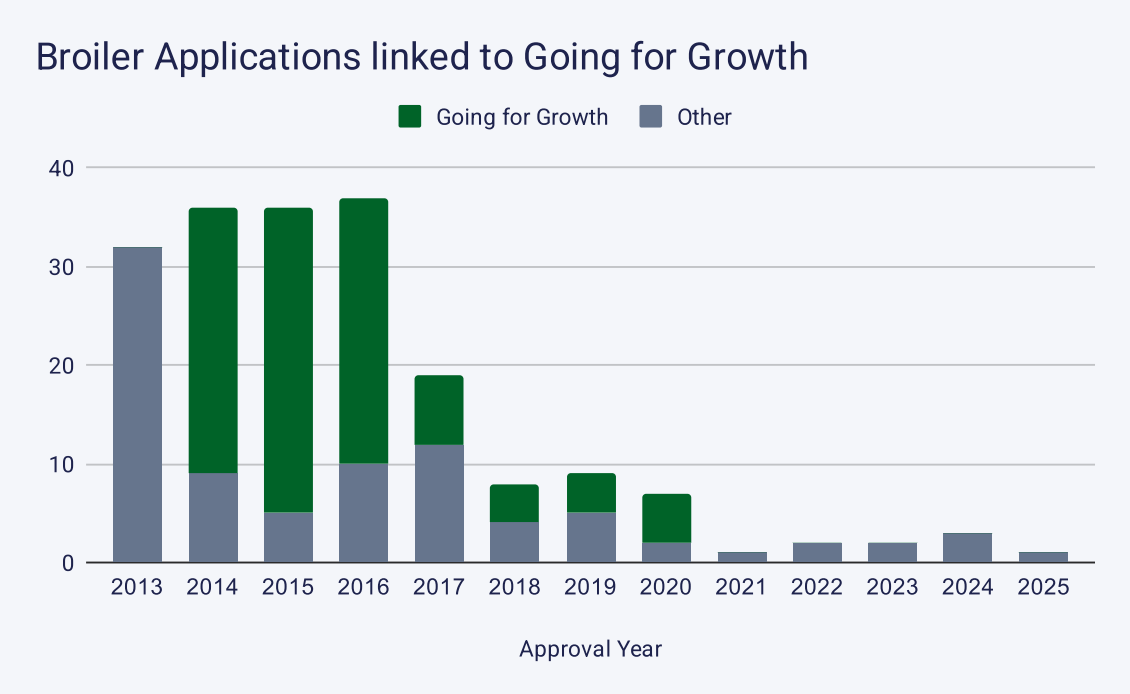
To examine links between Going for Growth and increased planning applications, broiler poultry applications were used as a case study, as the largest sub-sector of poultry and pig farming, and the most consistently labelled on planning application pages.

We searched broiler* chicken planning applications from 01/01/2013 onward for links to Going for Growth as a case study. Pilgrim's Europe (Moy Park), mentioned below, is the largest broiler processor in Northern Ireland, mapped in more detail on pages 86 to 105.

69% of broiler planning applications approved between 2013 and 2025 cited Growing for Growth in their planning application documents. 80% of the broiler population granted permission was linked to Going for Growth.**

Most Going for Growth linked expansion activity took place between 2014 and 2020. No applications approved in 2013 cited the policy, which is likely due to the delay between policy creation and planning decisions.

82% of the broiler applications found between 2013 and 2025 were linked to Pilgrim's Europe (Moy Park) through their submitted documents. 67% of the Pilgrim's Europe (Moy Park) linked applications also cited Going for Growth. The applications that cited both Going for Growth and Pilgrim's Europe (Moy Park) accounted for 99% of the broiler population capacity increase from Pilgrim's Europe (Moy Park) linked applications.

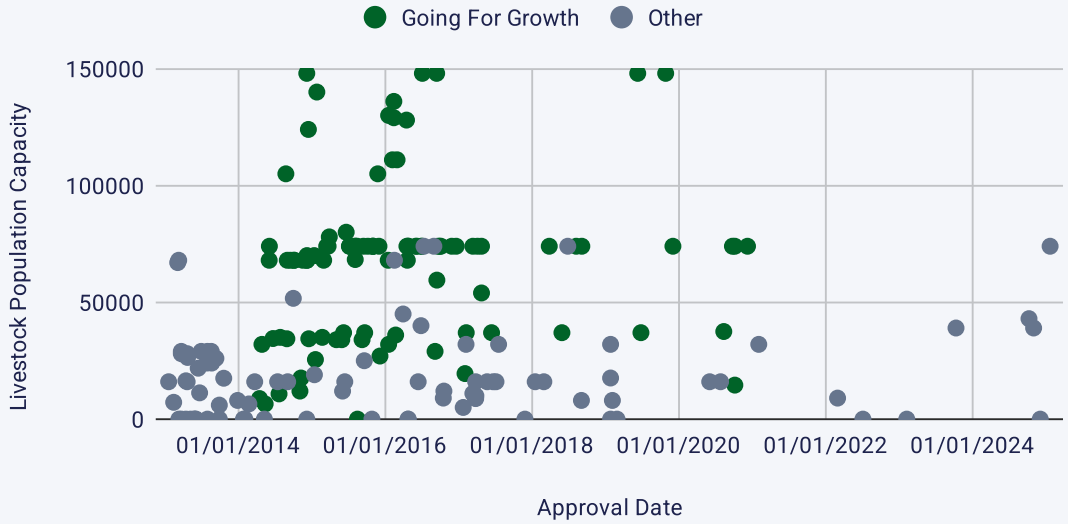


*Either applications marked as broilers or that may be linked to broiler production e.g breeding.
**Out of 193 applications, 23 had no population capacity listed on their application page.

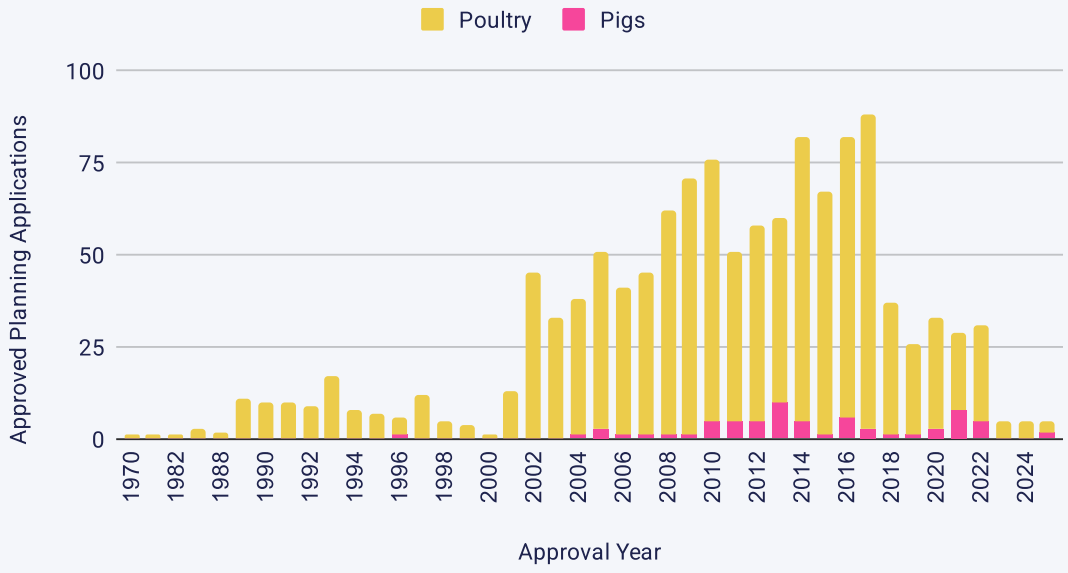
79% of approved applications between 2014 and 2020 cited Going for Growth, 90% of the chicken population expansion, 7.8 million birds. 97% of this population was from planning applications linked to Pilgrim's Europe (Moy Park). We approached Pilgrim's Europe (Moy Park) for comment, the company did not comment on this case study directly, their full response can be read on pages 102 to 105.

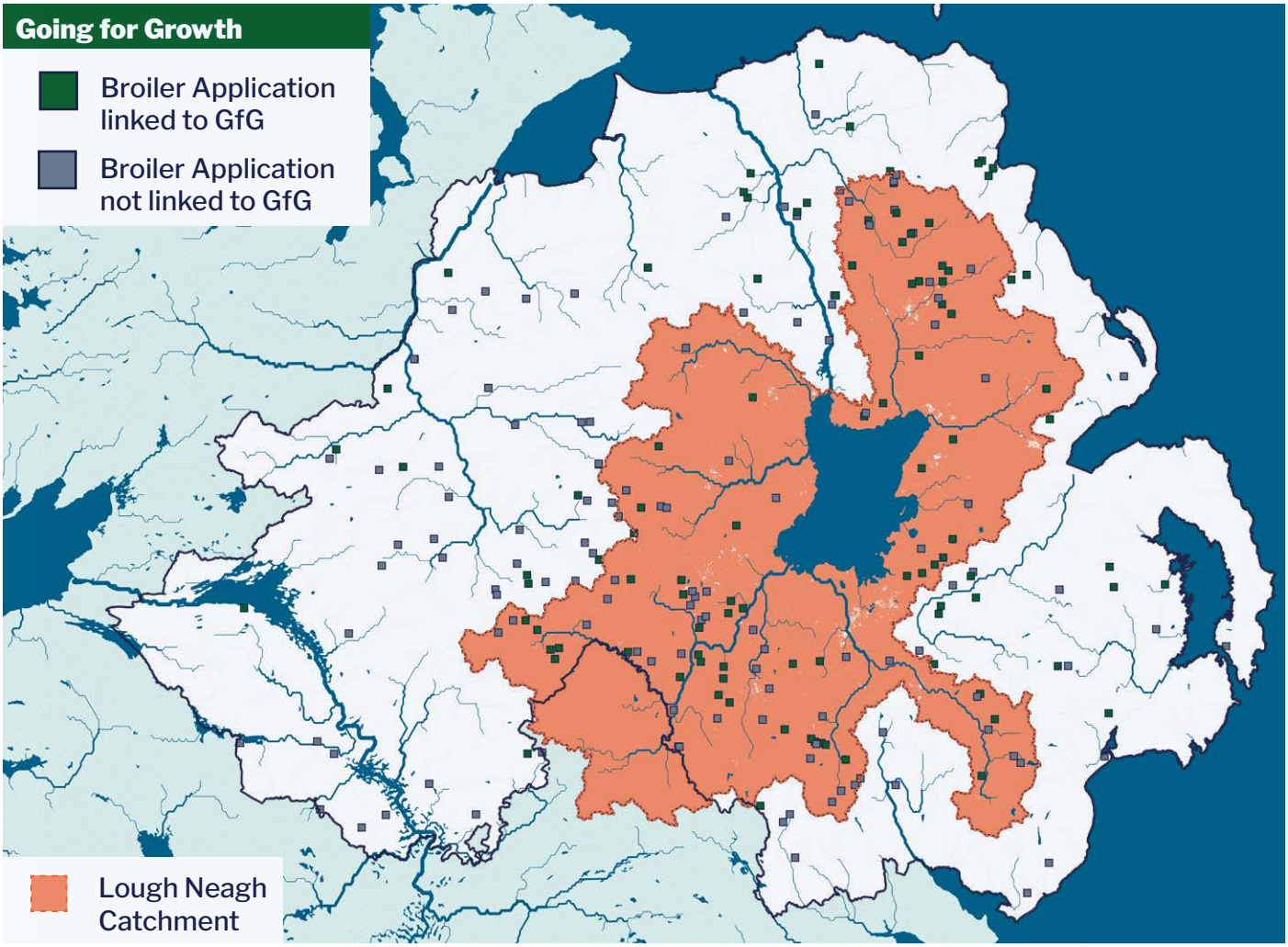
Searched Applications Linked to Going for Growth

Applications Granted Permission. 193 Searched Applications Total. 23 No Recorded Capacity.



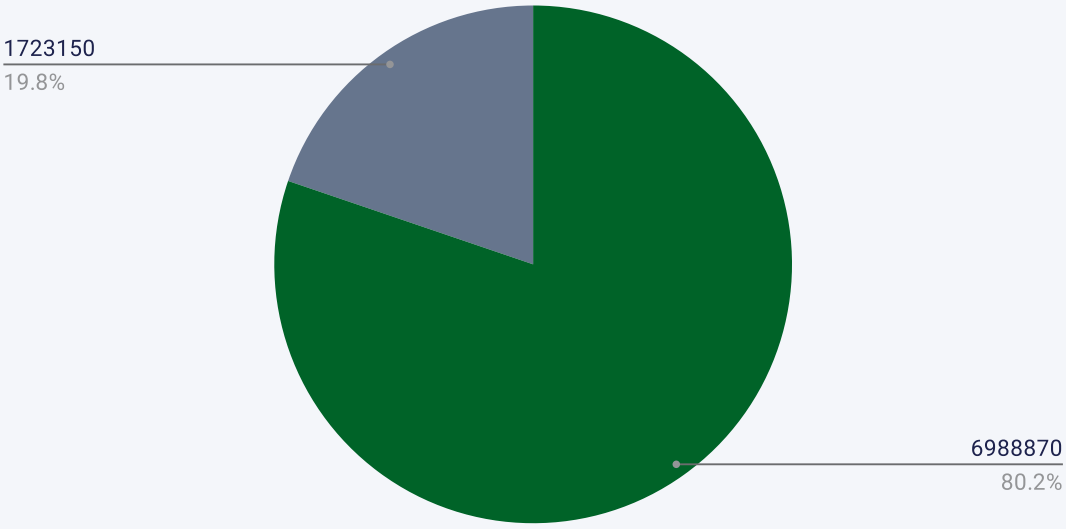
Pig and Poultry Applications Granted Permission





Searched Farm Capacity Linked to Going for Growth

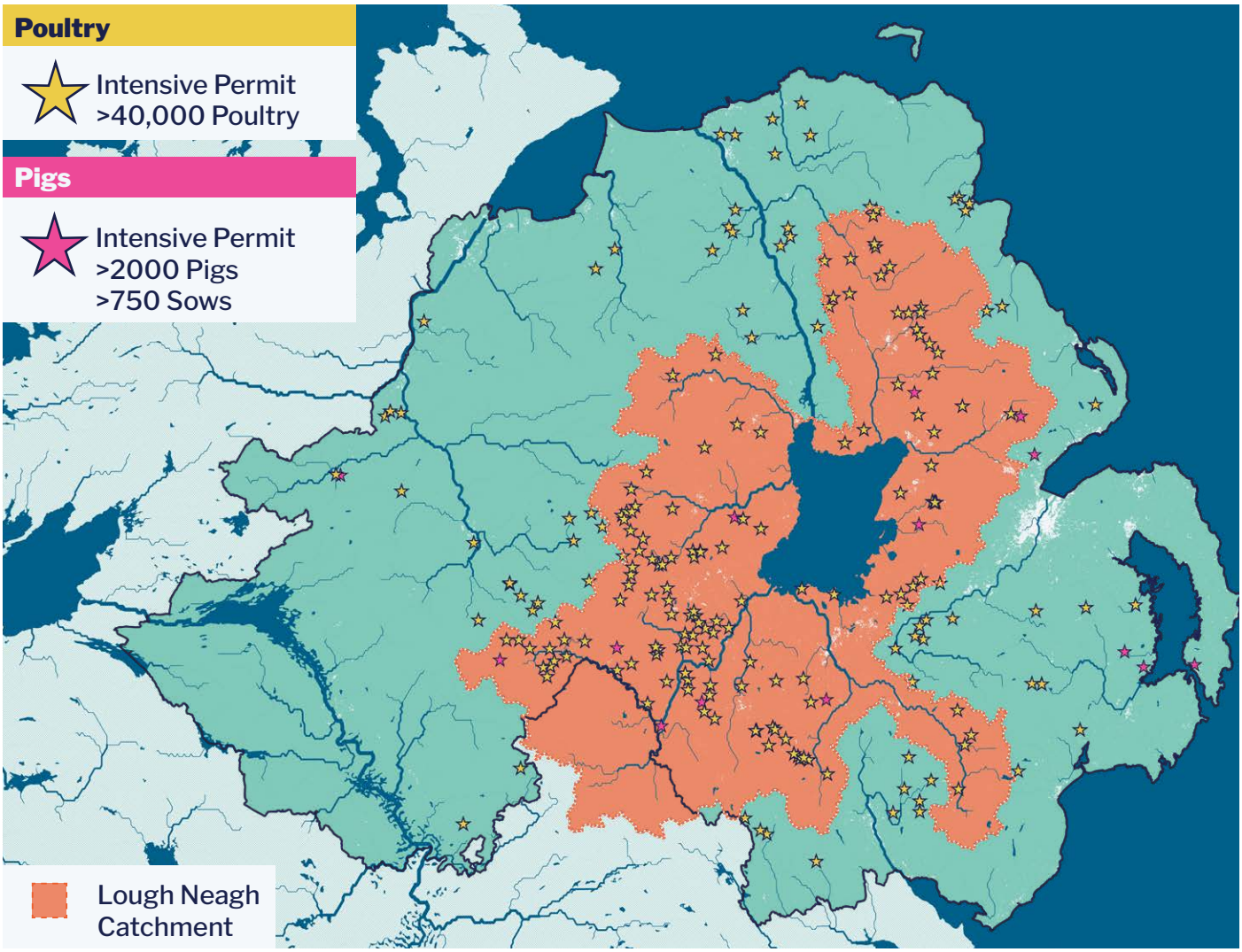
Livestock Population Capacity. 193 Searched Applications Total. 23 No Recorded Capacity.



Mapping Intensive Permits:

Intensive permits are required for farms that stock over 40,000 poultry, 2000 pigs or 750 sows. Permits are published centrally by DEFRA and by each of the UK's devolved governments, by DAERA in Northern Ireland (DEFRA 2024b; DAERA 2024e). We cross-referenced DEFRA and DAERA information to check locations, names and population counts. To confirm if the permits were still up to date before publishing this report, we requested a list of intensive permits that were active in 2025 from DAERA (DAERA 2026a). While planning applications may have been missed in our searches, due to the functionality of planning portals and inconsistency in planning application formatting, the intensive permit list is more reliably comprehensive at the time of analysis.

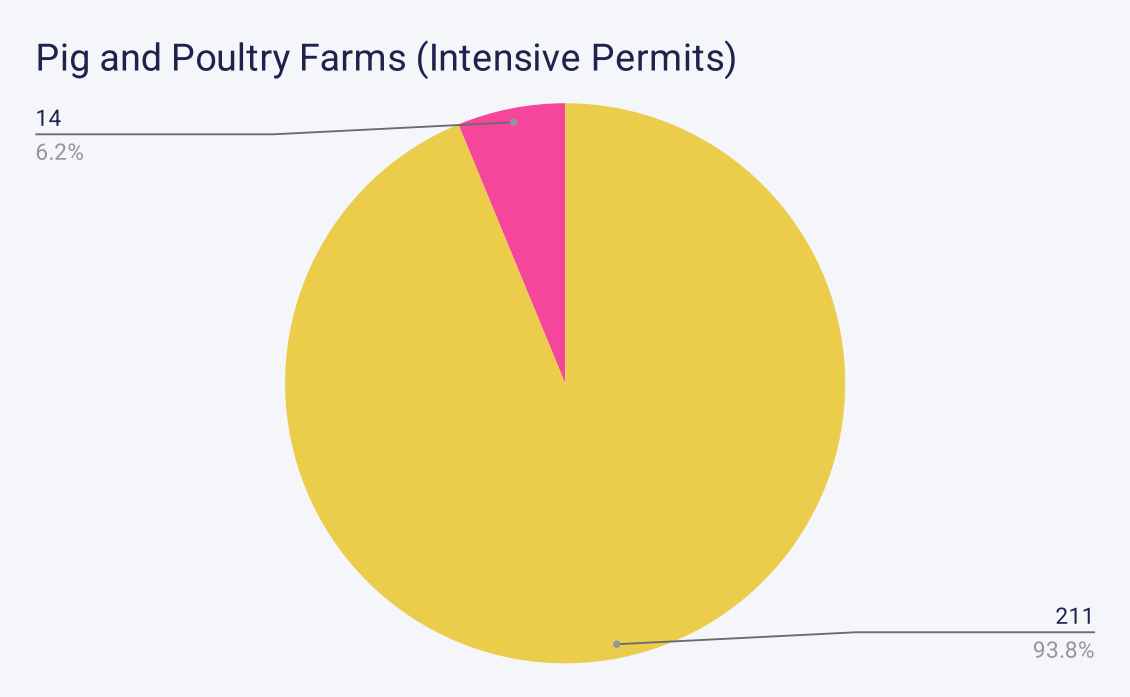
There are permits for 211 intensive poultry facilities and 14 intensive pig or sow sites in Northern Ireland, stocking up to 20,986,444 poultry and 96,165 pigs.

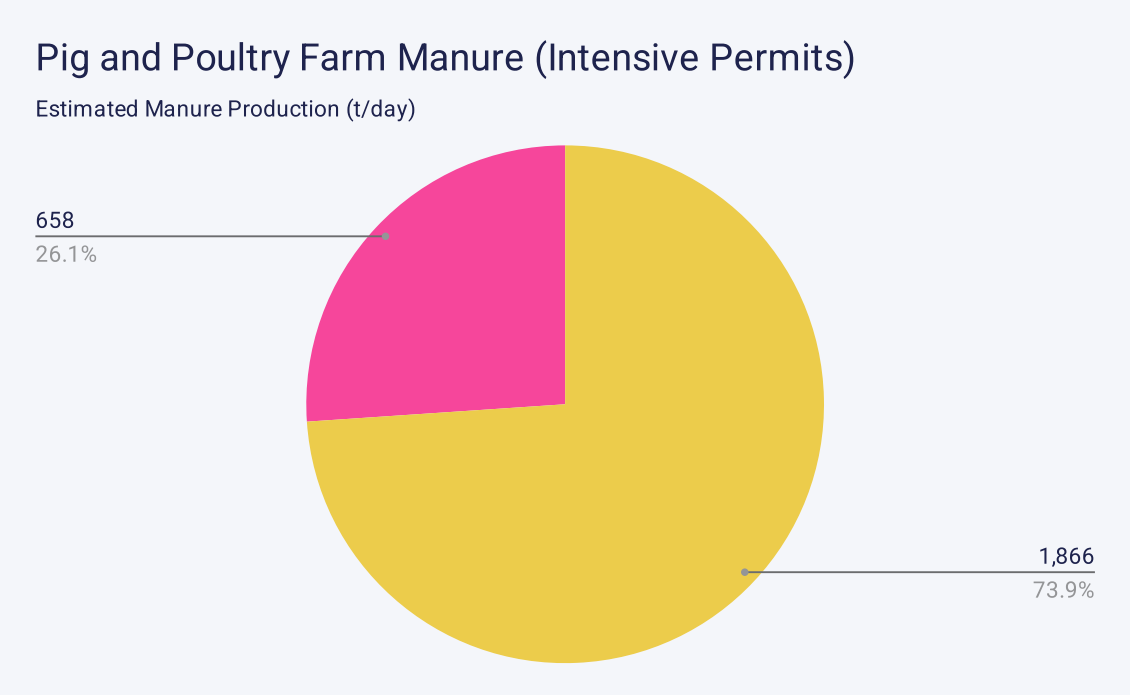


There are differences in the number of intensive permits listed in the 2024 DEFRA data and 2025 DAERA data. While the DAERA PPC (intensive permit) portal lists intensive farming as a process category filter, only around half of intensive permits have been labelled with this category.

Manure Production:

We estimate that pig and poultry intensive permits could produce up to 2,524 tonnes of manure per day. 1,866 tonnes of poultry manure and 658 tonnes from pigs.

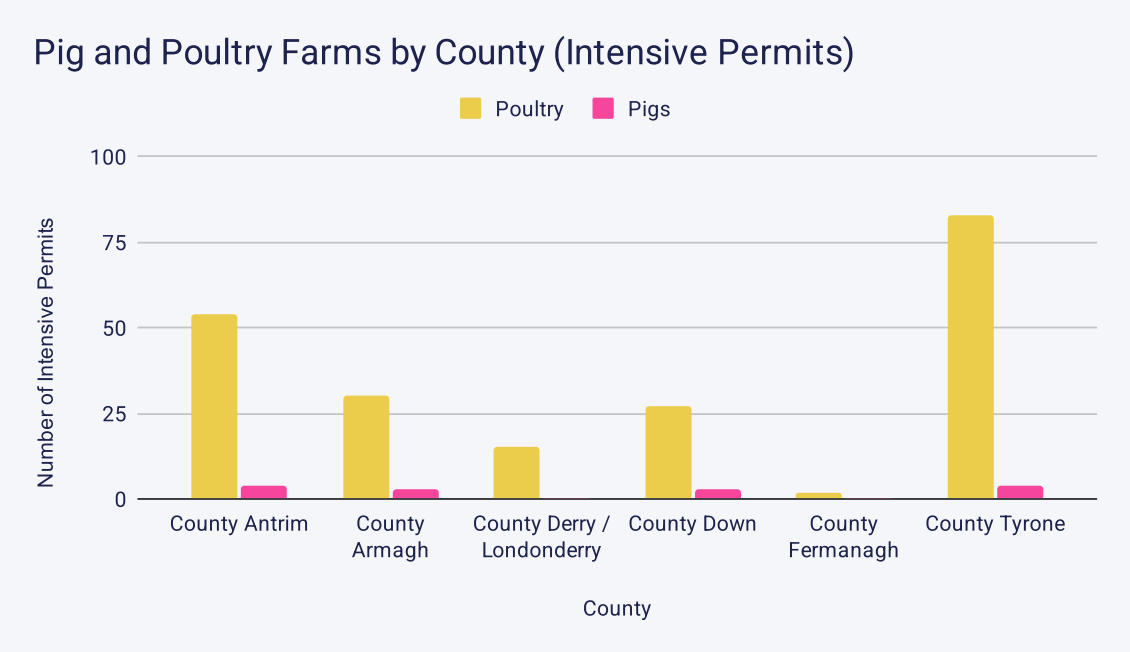


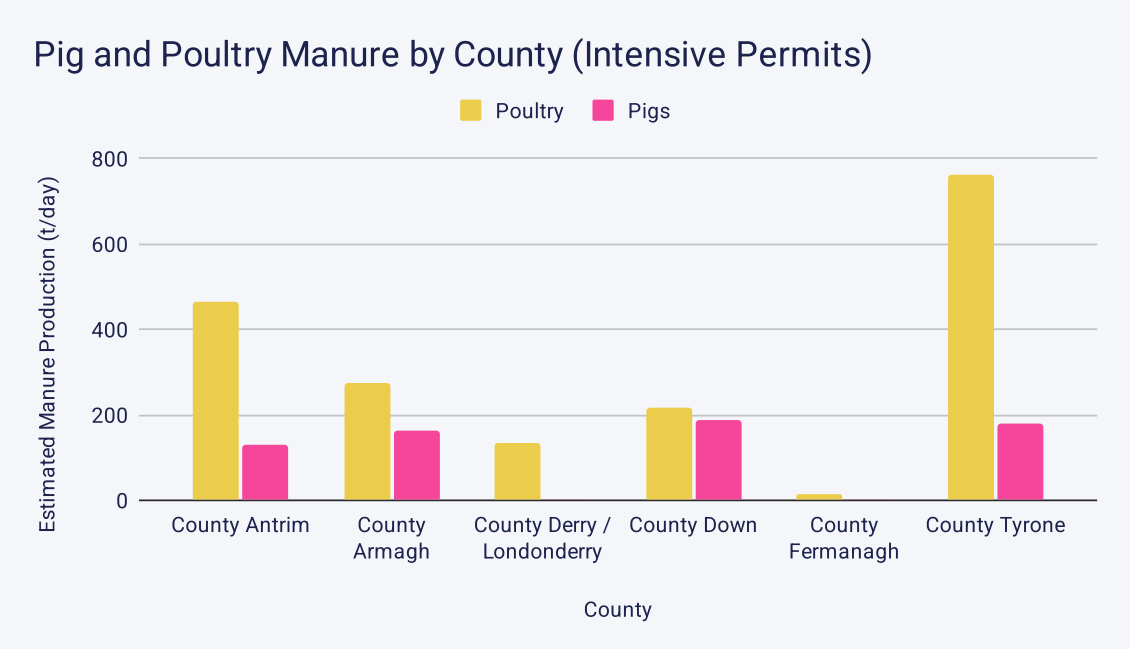


County Breakdown:

County Tyrone has the most intensive poultry sites at 83 and produces the most poultry manure. Tyrone has permitted housing capacity for 8,674,300 birds, which may produce 762 tonnes per day.

Although Counties Tyrone and Antrim have the joint highest number of pig permits, at 4, **County Down has the highest number of pigs and pig manure production, with 27,800 pigs which may produce 187 tonnes per day.**

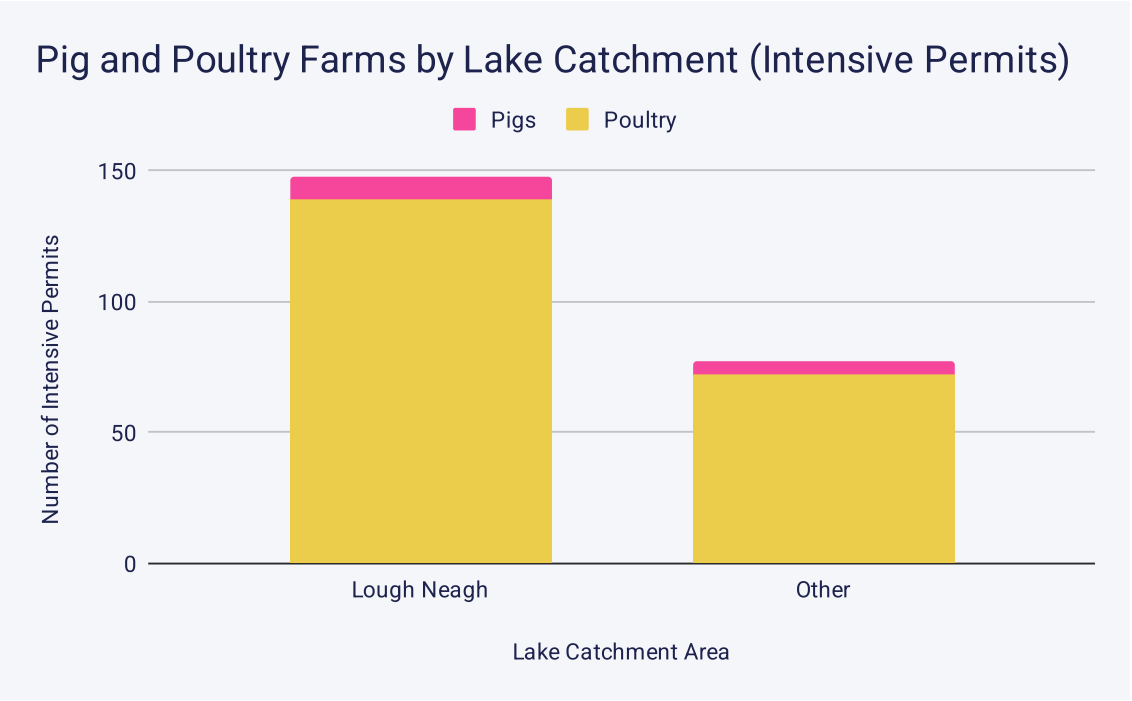


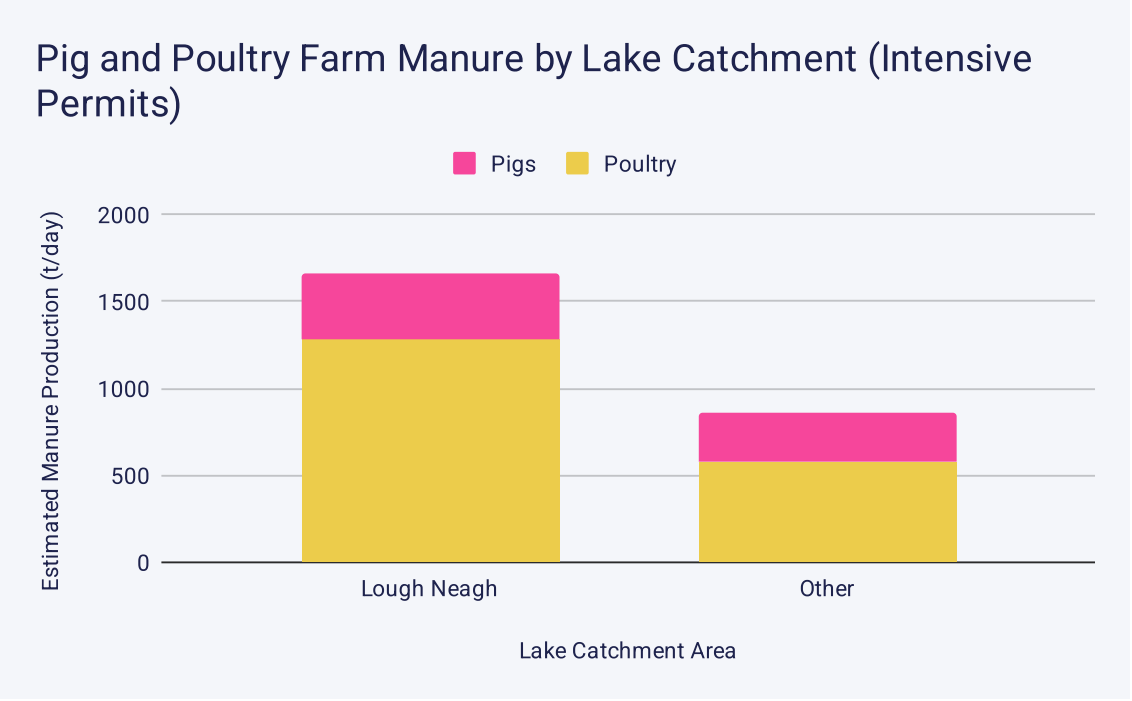


Lough Neagh Catchment Area:

The majority of intensive permits are sited within the Lough Neagh catchment, with 69% and 56% of poultry and pigs respectively, 14,393,800 birds and 54,265 pigs.

More manure is produced by intensive farms (intensive permits) within the Lough Neagh catchment, at 69% of the total poultry manure and 58% of the total pig manure produced from intensive sites across Northern Ireland.





Tracking Intensive Permit Manure:

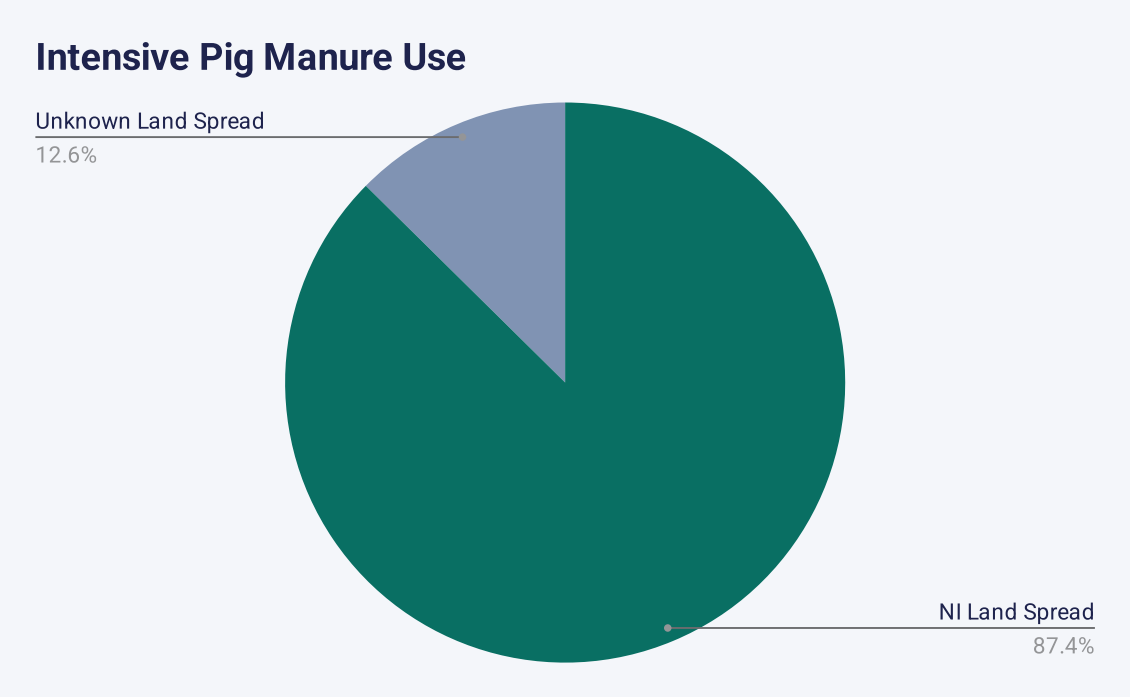
Farmers with intensive permits are required to report to DAERA the quantities of manure or litter produced and how it is used (DAERA 2024e). Manure might be spread by a farmer on their land as fertiliser, or sold on to anaerobic digestion units or mushroom growers for further processing. We surveyed the latest available reporting documentation for each intensive farming permit. This report does not allege any wrongdoing by the companies mentioned in this report.

Pigs:

According to the latest available reporting forms, Northern Irish intensive pig farms produced 183,031 cubic metres of manure, with a clear majority spread to land in Northern Ireland.

Most of the latest available reporting forms for pig farms covered 2024, two forms were from 2025 and one from 2023. The forms showed 87% of manure was spread to land in Northern Ireland, while the remaining 13% was also spread on land, The remaining 13% was also spread on land, but the nation in which it was spread was not provided*. All intensive pig farms submitted reporting documents in 2023, showing all manure was spread on land in that year. Some 77% was spread within Northern Ireland, 12% exported to Ireland and a further 12% spread at unknown locations in 2023.

County	Latest Manure Reporting (m^3)	%
Unknown (NI) County	125,230	68
Unknown (NI or ROI)	23,071	13
Armagh	21,500	12
Antrim	9,720	5
Tyrone	3,510	2

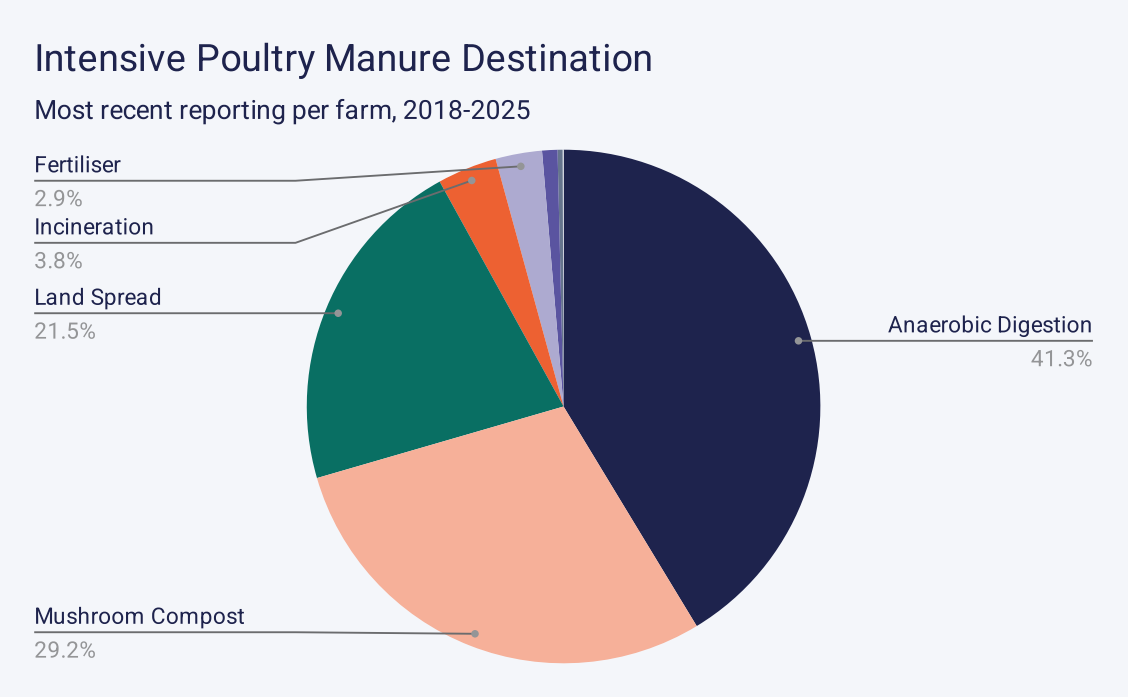


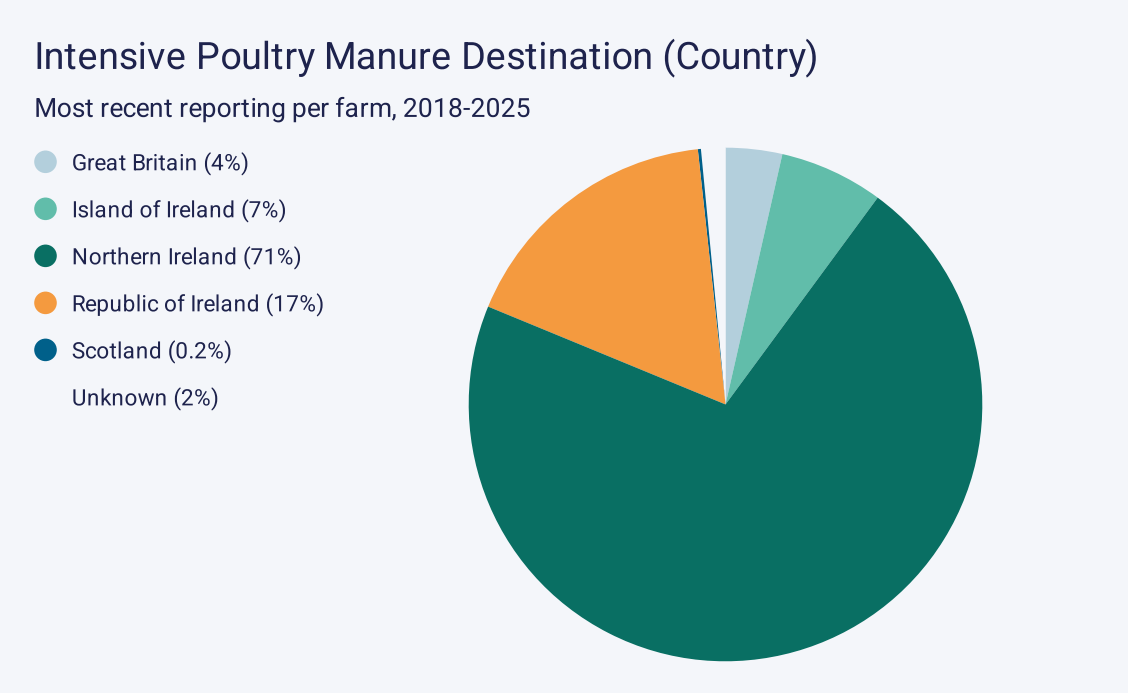
**Nation was determined either where stated or by the broad location (e.g County) listed. It was not within the scope of the study to look up local addresses for land spreading where nation or county where not available.*

Poultry:

Intensive poultry farms in Northern Ireland produced 132,289 tonnes of manure, according to the latest available reporting forms.

The majority of manure was processed by anaerobic digestion or incorporated into compost for mushroom growing, at 41% and 29% respectively. 22% was spread directly to land. 64 of 209 farms had forms available for 2025, 97 for 2025, 19 for 2023, 22 for 2022, 4 for 2021, 1 for 2020 and 2 for 2018. Manure exported to the Republic of Ireland was destined for anaerobic digestion, mushroom composting and land spread. All manure exported to Great Britain was incinerated.

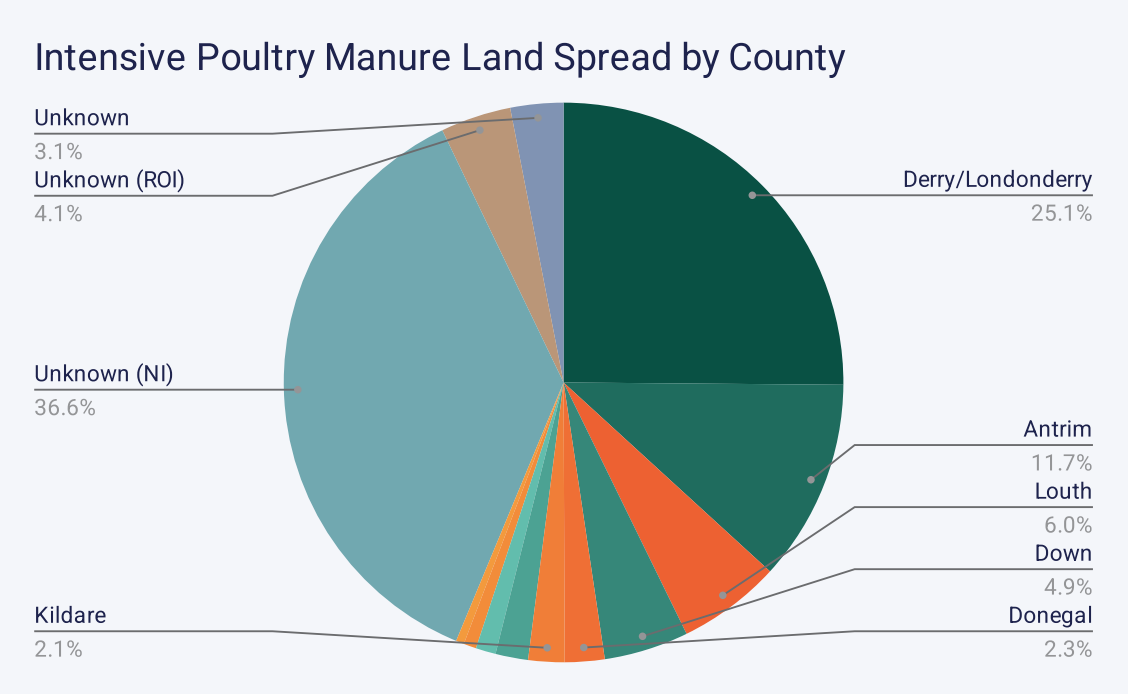




Land Spreading (Poultry):

According to the latest available forms for each farm, 81% of manure reported as spread to land was applied to fields within Northern Ireland, with 16% spread in the Republic of Ireland and 3% spread at unknown sites. Where counties were specified, Derry/Londonderry received the largest share, followed by Antrim and Louth.

Destinations for land spread are less consolidated than mushroom composting or anaerobic digestion, with the largest recipients* taking 15% and 10% respectively, both situated in County Derry/Londonderry. Other counties where manure was spread in Northern Ireland include Down, Tyrone, and Armagh. Northern Irish poultry manure has been spread in many counties in the Republic of Ireland (in addition to Louth). Spread has been reported in Counties Donegal, Kildare, Carlow, and Meath. Litter utilisation documents uploaded to the DAERA portal, that most likely detail farm locations for manure spreading, include Counties Wicklow, Offaly, Wexford, Laois, and Cork (Wilson 2014a, 2014b).



Incineration (Poultry):

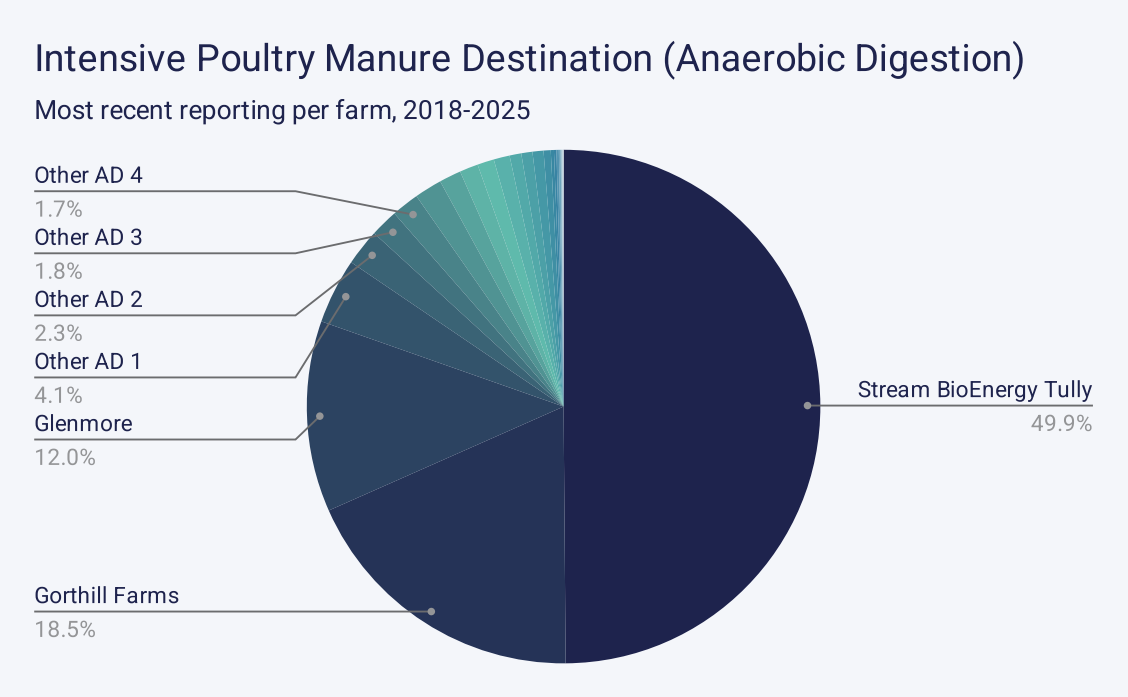
3.8% of total poultry manure was exported to Great Britain for incineration, often to Fife in Scotland, and in some cases naming EPR as the facility. EPR is owned by Melton Renewable Energy and operates three power stations which convert poultry litter into electricity (Melton 2026). The by-products of this are used as fertiliser, which Melton state are not sold to Northern Ireland. When approached for comment, Melton also said:

> "Melton believes that its use as biomass fuel for electricity generation in permitted facilities (such as Westfield and Thetford) is an ideal solution for large volumes of poultry litter. Melton's facilities provide an end-to-end audit trail for the responsible management of poultry litter and its transformation into electricity, and in parallel protect rivers, watercourses and lakes such as Lough Neagh."

Unknown in the above graph means no county name was available on the reporting forms.
**Location names have not been included here as they do not seem to be major companies or processing sites, and are likely farms or smaller businesses receiving or distributing manure.*

Anaerobic Digestion (Poultry):

Anaerobic digesters house a decomposition process, where materials from plants and animals (including manure) are broken down by micro-organisms to produce biogas, used as fuel for energy, heat or transport. Nutrient-rich matter is also produced, often used as a fertiliser, sometimes after further processing to concentrate the material.



The largest recipient of poultry manure was the Stream Bioenergy Tully Biogas plant in Ballymena, County Antrim, according to the latest reporting form per farm. This anaerobic digestion unit received at least 27,261 tonnes of poultry manure according to the latest available reporting documents, 21% of the total reported poultry manure. **50% of all poultry manure destined for anaerobic digestion was received by the Tully plant.** Comments from Stream Bioenergy can be found overleaf in a case study on this site.

The following two most significant sites processed 31% of the manure destined for anaerobic digestion. County Derry/Londonderry based Gorthill Farms received 19%, while Glenmore received 12%. Glenmore operates two sites in County Donegal, and one in County Tyrone, their Ballybofey plant received an "irregular" loan from Invest-NI which could not be repaid* (McAleer 2022). Gorthill and Glenmore did not respond to our requests for comment.

> "The problem with AD is that all the phosphorus comes through in the digestate, so you are left with the same volume of phosphorus in the digestate. Therefore, AD really only takes the energy out of the litter. **We are left with the problem of how to use the end product**." (Northern Ireland Assembly 2012)

**No comment from Glenmore was included in The Irish News article.*

Tully Case Study:

The Tully Biogas plant in County Antrim is operated by Stream Bioenergy, which claims this was the first anaerobic digester to specialise in poultry manure on a large scale (Stream Bioenergy 2022). While Tully received the single largest share of manure in 2022 poultry reporting documents, this did not equal the plant's total volume capacity. The anaerobic digester has capacity for 40,000 tonnes of poultry manure per year, and "is fed with poultry litter from over 100 farms around the Ballymena region" (IEA Bioenergy 2019).

Pilgrim's Europe (Moy Park) is contracted to supply Tully for 20 years, with 40,000 tonnes of poultry litter per year (Wilson 2023b). Since Tully started operating in 2017 (Fink 2019), this agreement will likely last until 2037. As of 2021-22, 100 Pilgrim's Europe (Moy Park) farms supply the anaerobic digestion site (Kendall 2022). Pilgrim's Europe (Moy Park) has signed a contract to supply 100,000 tonnes of poultry litter per year to the Tully AD from 2026, following an extension of the facility (Wilson 2023a).

Anaerobic digesters produce a digestate by-product in addition to gas, used to generate heat, energy or both. Digestate is nutrient-rich, a potent fertiliser that adds risk of run-off and eutrophication when spread incorrectly, or compounding problems in areas with soil nutrient surplus. Tully's sustainability selling point is that it produces two types of digestate, splitting phosphate into a dry form and nitrogen into a liquid fertiliser. When approached for comment, a Stream Bioenergy representative explained their outputs as:

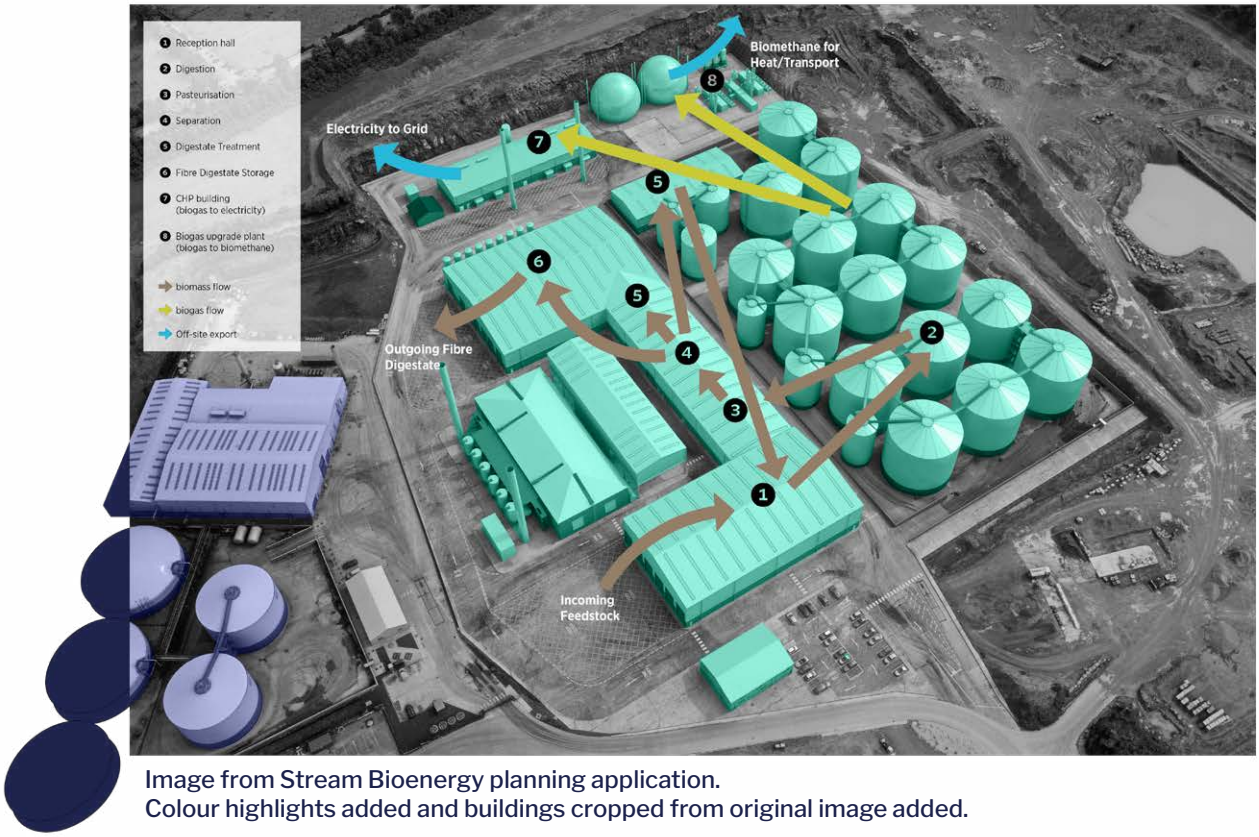


Image from Stream Bioenergy planning application.
Colour highlights added and buildings cropped from original image added.

Existing: 40,000 t

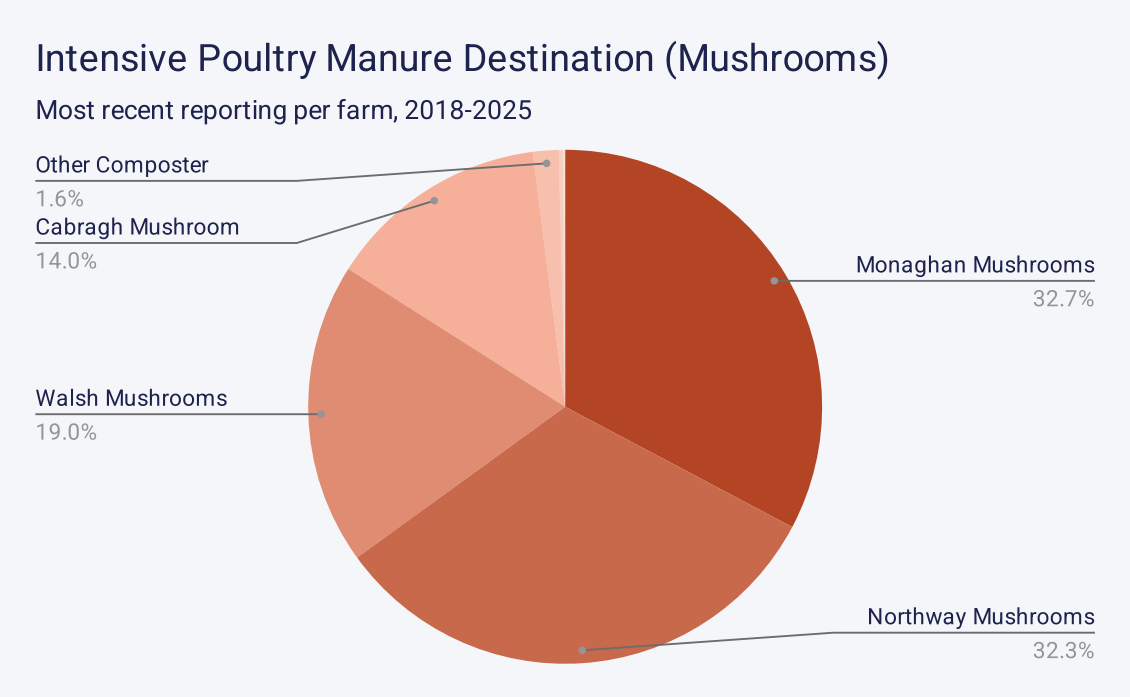
Approved Expansion: 200,000 tonnes per year

> "Our process produces 3 biofertiliser products; fibre digestate which is supplied to the horticulture market (thereby diverting phosphorous away from Northern Ireland agriculture), a concentrated liquid ammonium fertiliser (which is all exported to fertiliser companies in RoI and mainland UK), and a liquid digestate that is used on local landbanks (with low N content and lower emission rate compared to untreated manures). These products divert phosphorous away from farming in NI, and abate approximately two-thirds of the nitrogen/ammonia that arrives at the Tully plant. As part of our future plans for the Tully expansion plant, we will incorporate a further stage of digestate treatment to process the liquid digestate fraction into another sustainable biofertiliser that can be exported away from NI farming. When the Tully expansion is complete and operational, it will deliver a zero digestate to Northern Ireland agricultural land solution".

This model of AD units specialising in chicken litter looks set to expand in Northern Ireland and in Great Britain. Tully has received planning permission to expand, increasing the capacity to 200,000 tonnes of poultry manure from 2026 (Stream Bioenergy 2022). DAERA has funded other companies to learn from this model and develop similar anaerobic digestion for cattle and pig slurry (DAERA 2024d). Following public pressure on water quality, the main poultry processor in the River Wye catchment, Avara Foods, has incorporated phosphate splitting anaerobic digestion in their sustainable poultry manure roadmaps (Avara Foods 2023a; 2023b).

Mushroom Compost:

Poultry manure is incorporated into compost, also known as substrate, to support mushroom cultivation in both Northern Ireland and the Republic of Ireland. Mushroom farming has historically been centred in the border counties (Williams et al. 2001). The UK has been the largest market for Irish mushrooms, 80% in 2019 (Murtagh 2019). Spent compost has been widely used as a fertiliser on fields in the Republic of Ireland, with the largest mushroom company Monaghan detailing use as a soil conditioner (EPA 2012; Monaghan Group 2026).



Monaghan Mushrooms received 33% of the poultry litter destined for mushroom composters, likely all exported to County Kildare. The only substrate site listed for the company on the island of Ireland is Carbury in County Kildare, and this site is mentioned in a litter utilisation agreement with Pilgrim's Europe (Moy Park) (Cassidy 2023; Monaghan Group 2025). Monaghan is one of the largest mushroom producers globally, and the dominant producer in Europe (An Taisce 2015; Murtagh 2019). When approached for comment, Monaghan Mushrooms said:

> "As a matter of company policy, we do not provide detailed responses to individual environmental inquiries of this nature. Our sustainability commitments and practices are outlined in our publicly available materials, where you can find further information about our approach. We remain committed to operating to the highest environmental and sustainability standards."

Northway mushrooms took delivery of 32%, and in 2024 a Northway spokesperson said that their County Tyrone "facility sustainably manages a significant proportion of Northern Ireland's poultry litter". Northway mushrooms sold most of their produce to Monaghan Mushrooms within the Republic of Ireland (Murtagh 2019).

Local residents have protested both in 2024 and 2025 against experiences of bad smells from the site (Lima 2024). This company is in administration at the time of writing**, and their compost manufacturing site has been bought by Sawgrass Substrates Limited (McCracken 2025). The BBC noted that Sawgrass acknowledged concerns that local residents had raised, and Sawgrass said it was in "full compliance with all environmental requirements", and had "invested significantly in advanced odour reduction technologies"*. This report found no evidence of wrongdoing by Sawgrass Substrates. When approached for comment, a representative for Sawgrass said:

> "Sawgrass Substrates have worked to maintain a compliant regulatory record with the Northern Ireland Environment Agency (NIEA), and we can confirm that Sawgrass Substrates remains fully compliant with all conditions of their environmental permits. Following a significant investment in odour abatement technology and infrastructure upgrades completed in late 2025, the NIEA has acknowledged a notable reduction in odour intensity and frequency."

A Teagasc advisor included four composting facilities in his summary of the Irish mushroom sector, naming Carbury Compost (Monaghan Mushrooms), Custom Compost (Walsh Mushrooms) in the Republic, and Northway Substrate and Cabragh Mushroom Compost in Northern Ireland (Gernon 2024). The manure reporting documents match this, with 52% exported to the South and 46% used by the compost facilities within Northern Ireland.

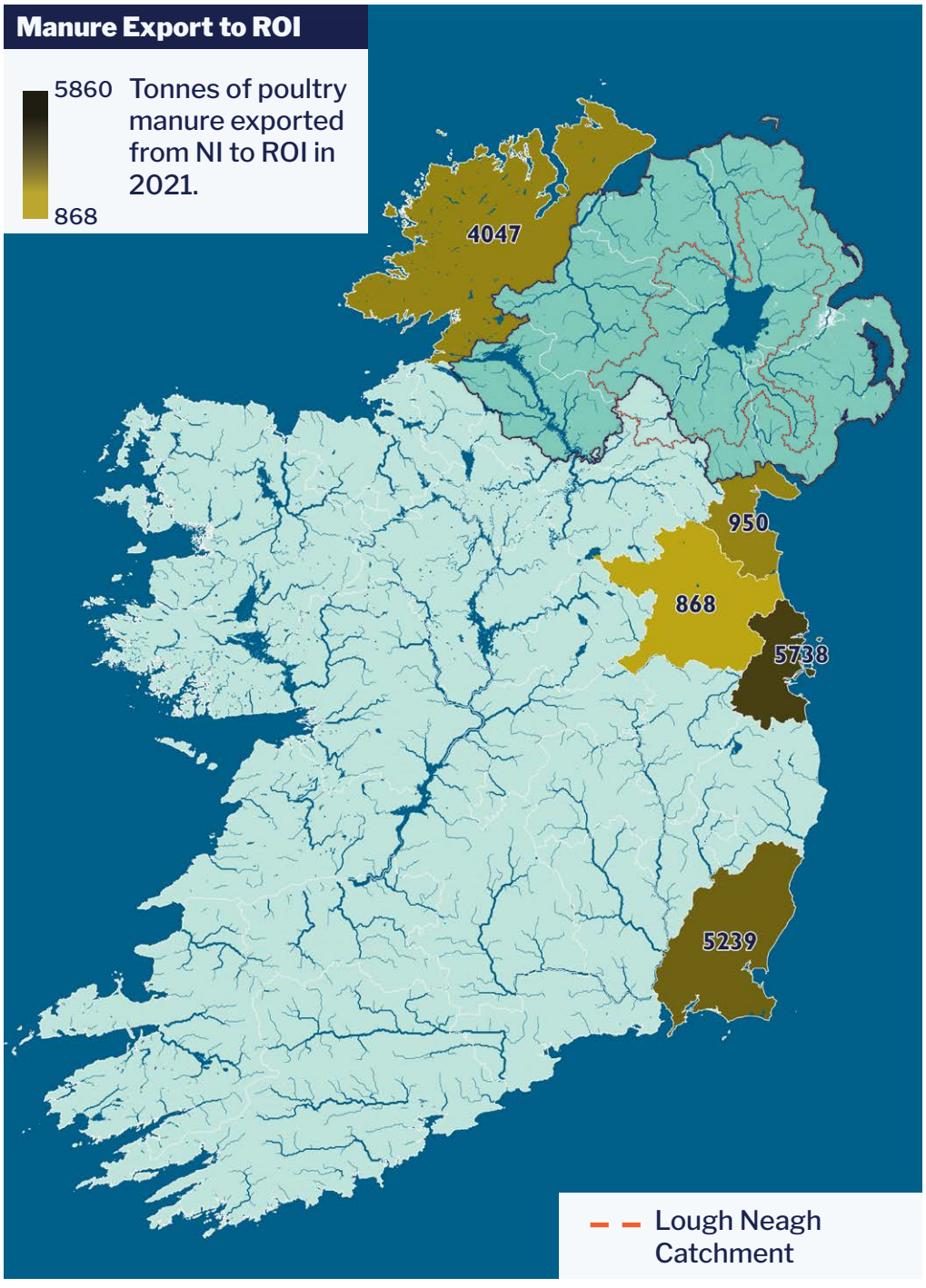
Walsh Mushrooms and Cabragh Mushroom Compost did not respond to our requests for comment.

**Northway as a producer co-op has re-incorporated as Gaelgro. As Northway have underlined the separation between producers and compost yard, we have not approached Gaelgro (Northern Ireland Assembly 2025).*
***Further Sawgrass comment noted their £1.2m investment in an odour control facility without expanding processing capacity.*

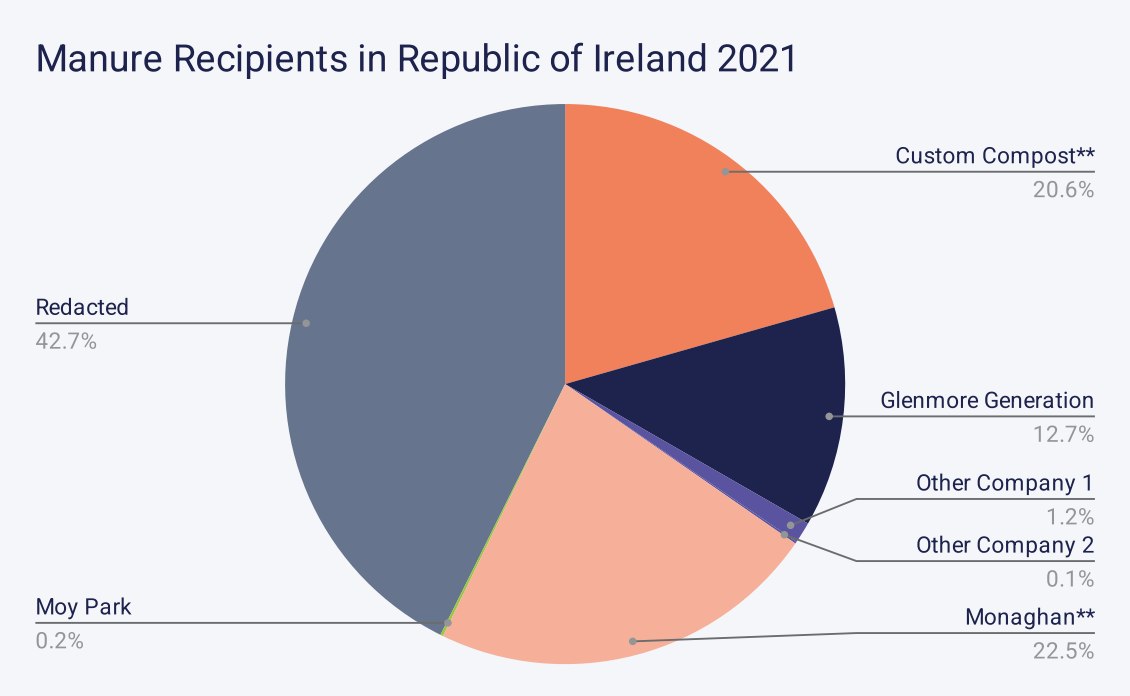
Poultry Manure Export to the Republic of Ireland:

The Bureau of Investigative Journalism obtained records of poultry manure exported from Northern Ireland to the Republic of Ireland during 2021, with information subsequently published as a table by the Journal.ie (Sargent 2022). We analysed the export location and recipients from this table where it was available. Some information on the documents, which were obtained by FOI, was inconsistently redacted.

According to the export forms, a total of 25,458 tonnes of poultry manure was exported into the Republic of Ireland from the North in 2021. 43% of the total manure was received by mushroom composters or producers, and 13% sent to anaerobic digestion. For another 43% of manure, the recipient was redacted on export forms. The most manure was sent



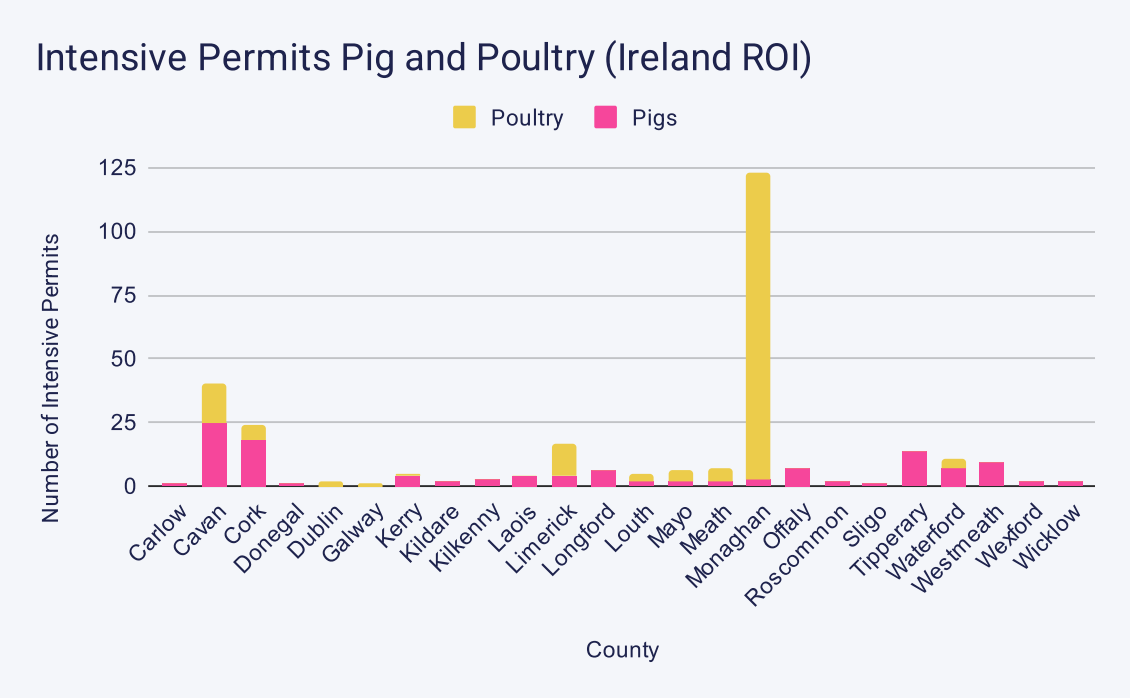
to counties Kildare, Dublin, Wexford and Donegal in that order, while 10% was redacted. 92% of this manure was shipped by Pilgrim's Europe (Moy Park)*, as stated on export forms. A spokesperson for Pilgrim's Europe told us that "in 2021, landspreading in ROI represented 10% of our total litter management ... the company has not sent any litter for landspreading in ROI since 2022" as the company has phased out land spread in the Republic of Ireland. For more detailed responses from Pilgrim's Europe (Moy Park) please see pages 102 to 105.

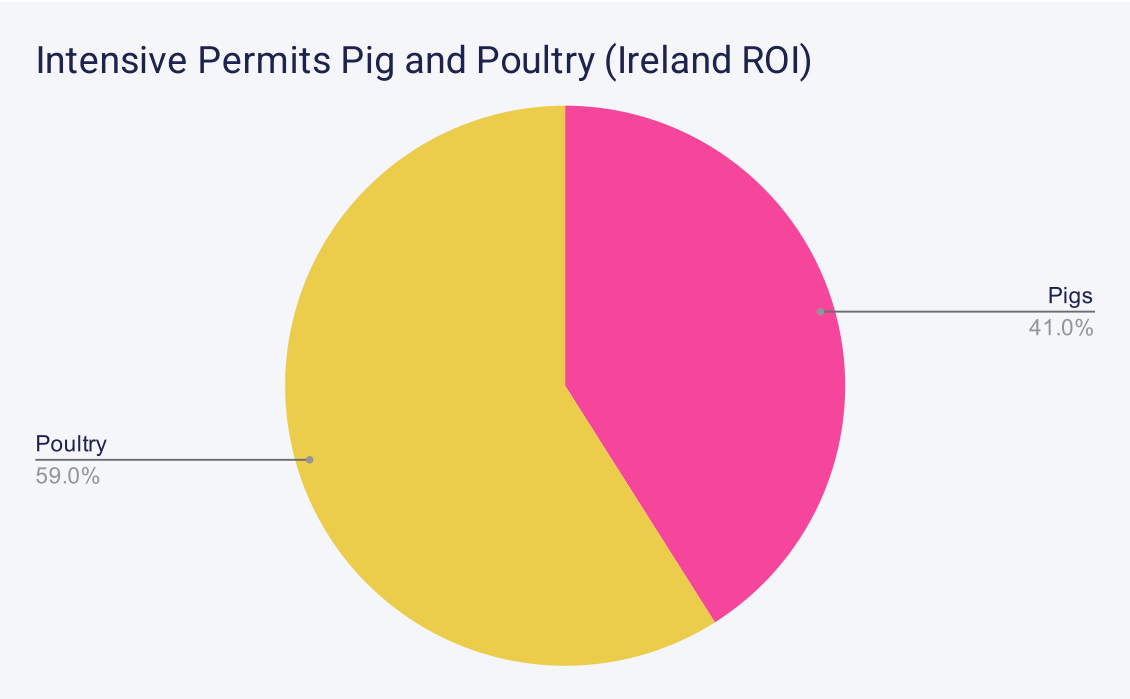


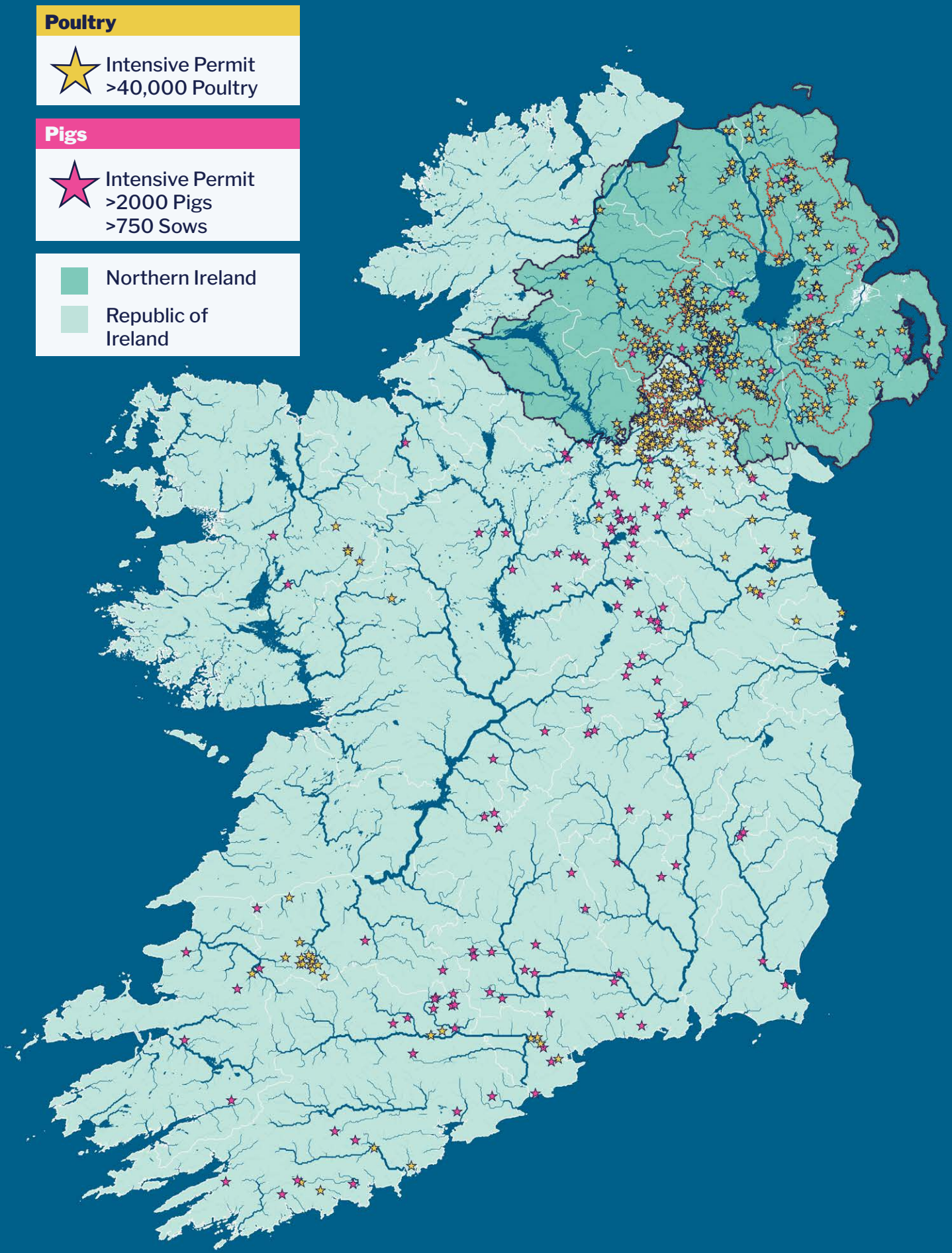
In their quoted responses to The Journal, Pilgrim's Europe (Moy Park) did not directly address the records presented in the table. The Journal described their broader response as: "Moy Park said that it is a "responsible business" and that all expansion plans are subject to "highly regulated" environmental modelling. "No decision," it said, "is taken without the appropriate full planning permission" and relevant licensing approval.
***Custom Compost (Walsh Mushrooms). Monaghan Mushrooms.*

Mapping Intensive Permits in the Republic of Ireland:

The Republic of Ireland had a population of 17.1 million poultry in 2023 and 1.5 million pigs in 2024 (CSO 2024; DAFM 2025). In 2022, the Republic of Ireland had a population of around 31.5 million birds, compared to approximately 24.8 million birds in Northern Ireland (DAFM and DAERA 2022). Intensive permit information is published by the Irish Environmental Protection Agency (EPA 2024b), which reveals that Monaghan and Cavan have the highest number of permits per county. Cavan has the highest number of pig permits, followed by several counties other than Monaghan. Poultry permits in Monaghan, however, make up 40% of all intensive permits in Ireland.






Poultry
Intensive Permit
>40,000 Poultry
Pigs
Intensive Permit
>2000 Pigs
>750 Sows
Northern Ireland
Republic of
Ireland

Mapping Farms in Monaghan and Cavan:

Republic of Ireland Survey Statistics:

We extended this study into two counties of the Republic of Ireland, covering the section of the Lough Neagh catchment that extends into Monaghan. This county, alongside Cavan, is the centre of intensive pig and poultry production in Ireland. According to the largest Irish business lobby group in 2023, "the Border region accounts for around 70% of the flock followed by 14% in the southern region, 12% in the mid-west/west" (Food Drink Ireland 2023). The majority of Irish chickens are raised in County Monaghan (Sargent 2022). The 2024 National Pig Census of Ireland reported that County Cavan has the largest pig population with 18% of the total, followed by Cork at 17% and Tipperary at 8% (DAFM 2025).

County Livestock	Population	Year	Source
Monaghan Poultry	18,518,846	2020	(Fehily Timoney 2021)
Cavan Poultry	1,423,500	Uncertain	(Fehily Timoney 2023)
Monaghan Pigs	22,590	2024	(DAFM 2025)
Cavan Pigs	270,997	2024	(DAFM 2025)

Mapping Planning Applications in Monaghan and Cavan:

We searched the Monaghan and Cavan planning portals using the same methodology (ePlan 2025b; 2025a). Due to a lack of population information on the planning application pages, it was not possible to quantify the livestock capacity of these farms. Applications referring to the same farm site were linked by cross-referencing applicant names and application addresses, and then cross-referenced to intensive permits. Planning application locations on this map have a more variable location accuracy than those of Northern Ireland. While some planning applications had coordinates listed, others only contained addresses with varying levels of detail. It was not possible to obtain location information from the interactive mapping features of Monaghan and Cavan planning portals. Instead, coordinates were generated through Google Maps address searches, the accuracy of which varies depending on the detail of the application address.

After linking applications and permits that relate to the same farm site, we found 620 poultry and 159 pig farms across the two counties. Monaghan is dominated by poultry, with 504 poultry farms compared to 28 pig farms. Cavan is more balanced with 116 poultry farms to 131 pig farms.

County	Poultry Farms*	Pig Farms*
Monaghan	504	28
Cavan	116	131
Total	620	159

**Cross-referenced application and permit addresses and names to minimise double counting.*

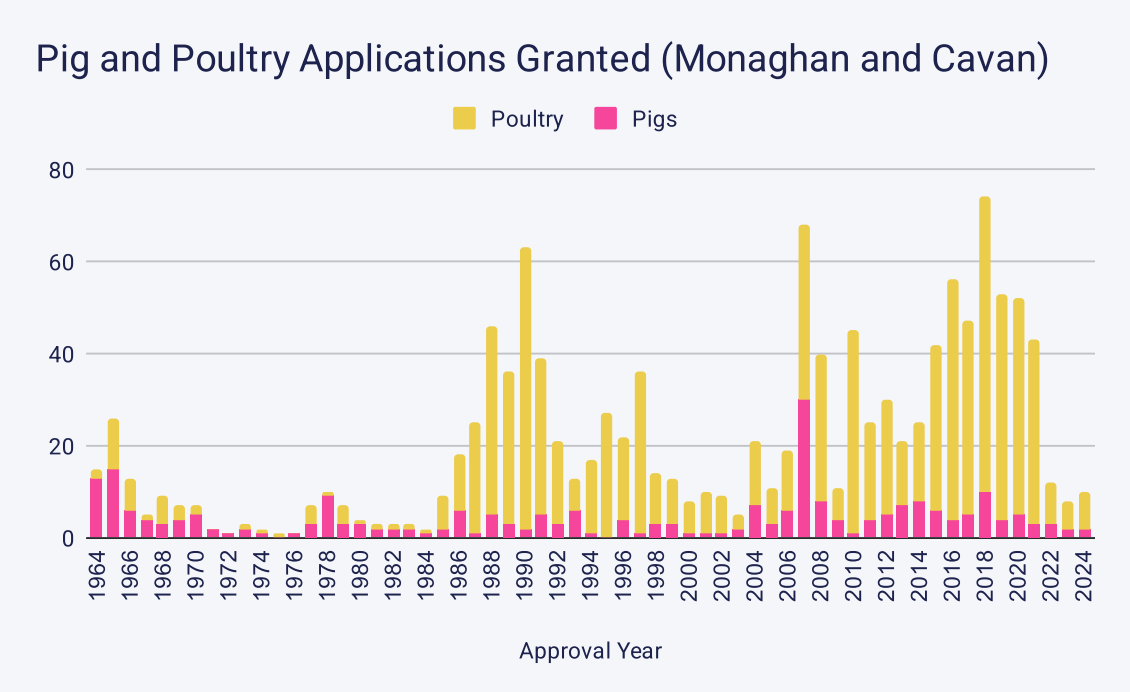
Farm Type	Monaghan	Cavan	Total
Intensive Poultry Farms	121	14	135
Regular Poultry Farms*	383	102	485
Intensive Pig Farms	3	25	28
Regular Pig Farms*	25	106	131

**Cross-referenced application addresses and names to minimise double counting.*

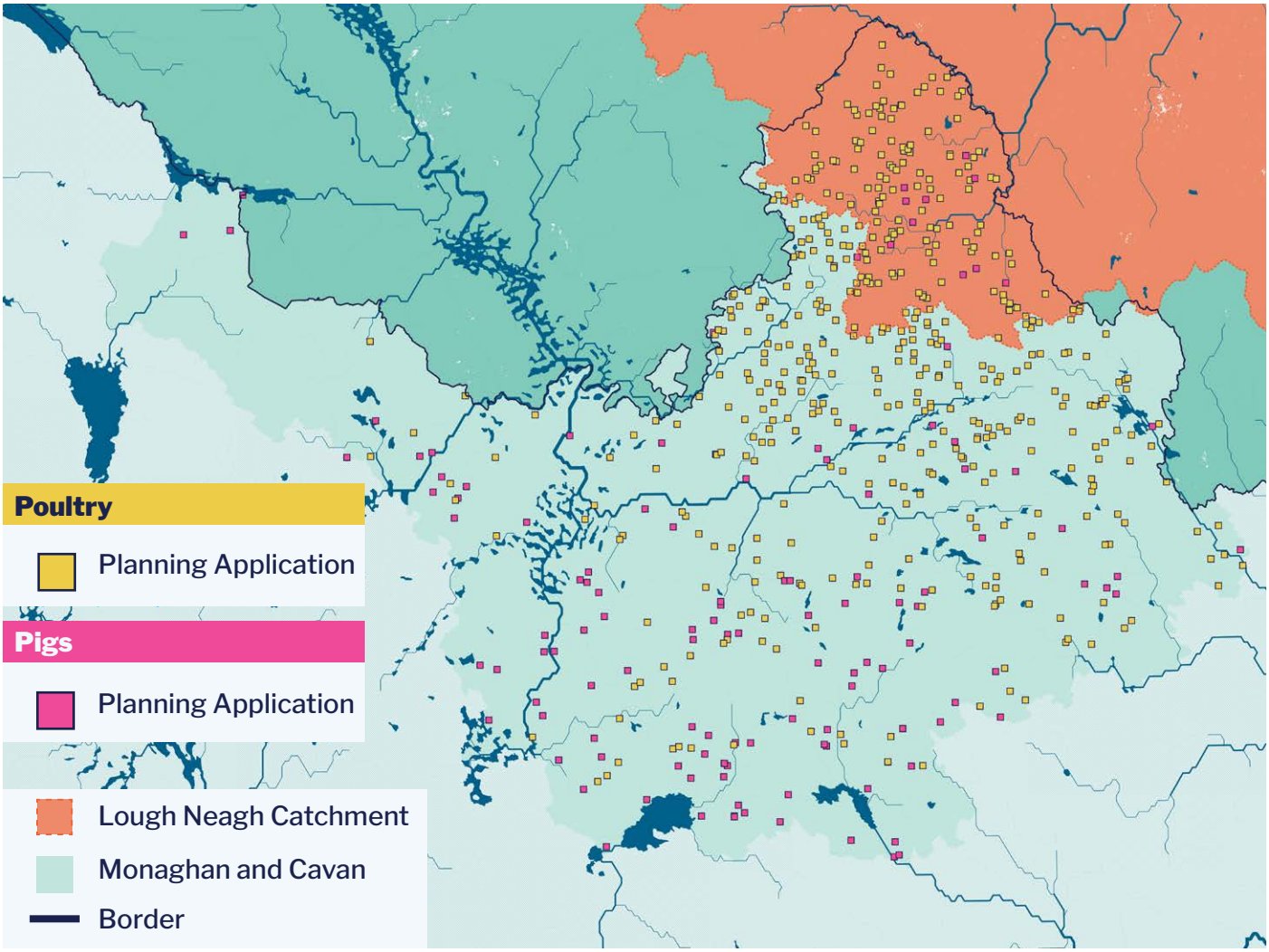
A quarter of all poultry farms in Monaghan are classed as intensive, and 11% of pig farms within the county are intensive. In County Cavan, 12% of poultry farms and 19% of pig farms are classed as intensive.

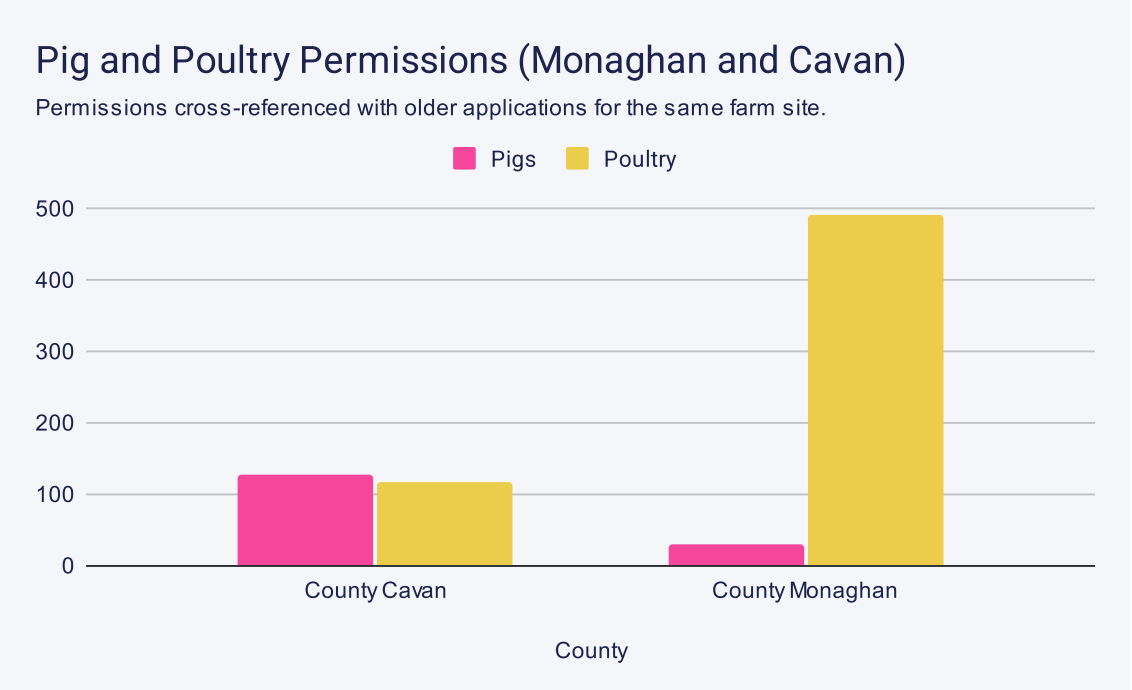
County Monaghan has almost four times the amount of regular poultry farms, those under the intensive threshold, than County Cavan - 383 compared to 102. The ratio reverses for regular pig farms, where Cavan has four and half times more than County Monaghan, 106 regular pig farms to 25.

The peak year for pig applications was in 2007 with 30 approved applications, a sharp increase from 3 in 2005 and 6 in 2006. Poultry applications peaked in 2018, when 64 applications were approved, following an upward trend in numbers approved from 2013.

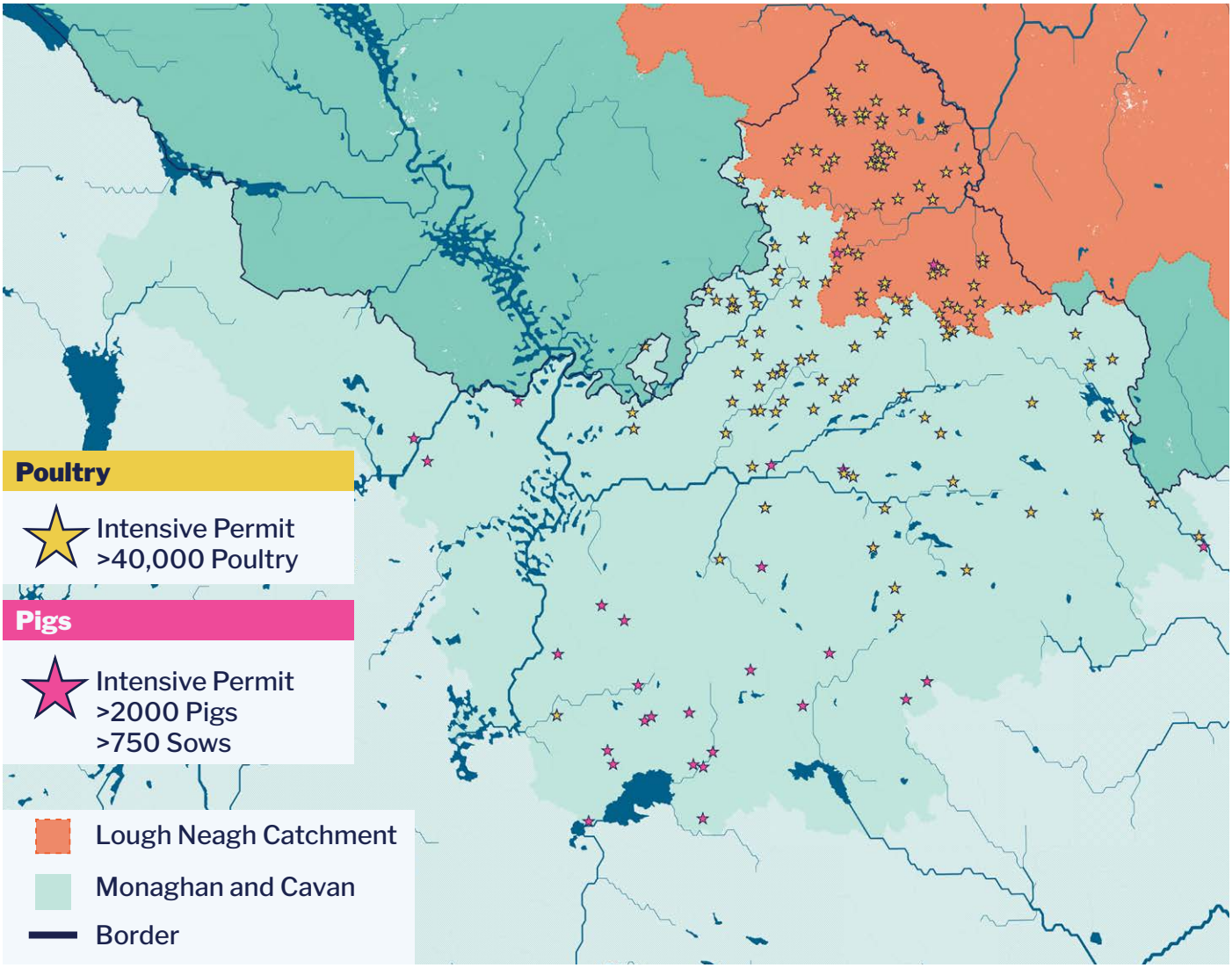


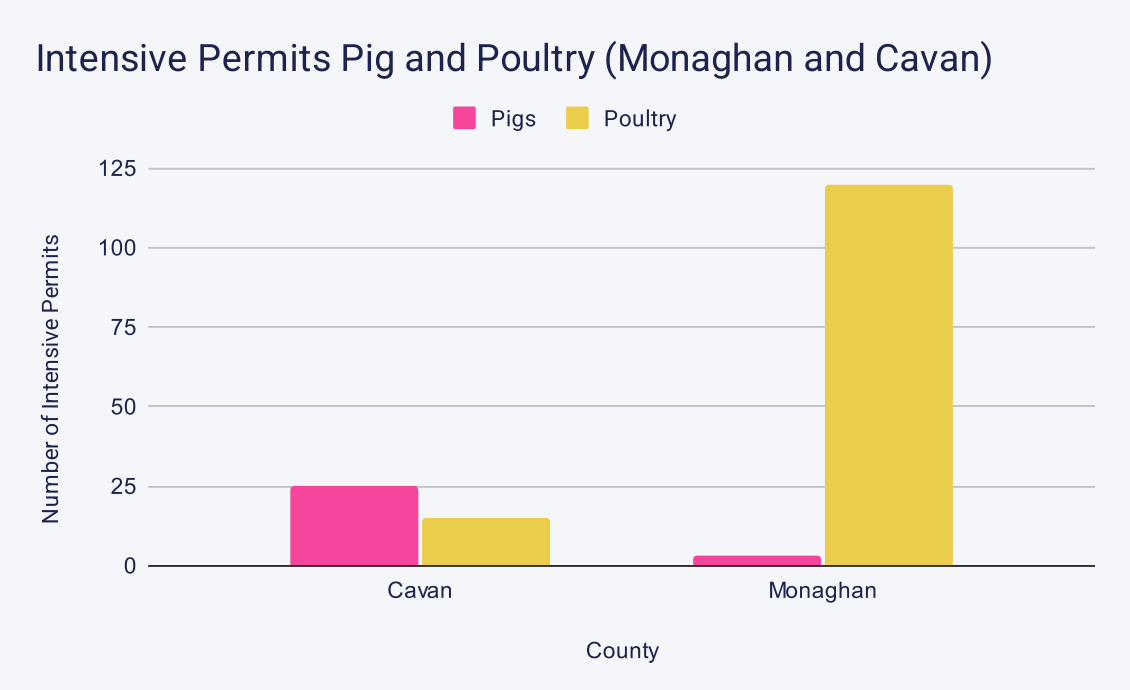
Map of Planning Applications in Counties Monaghan and Cavan.





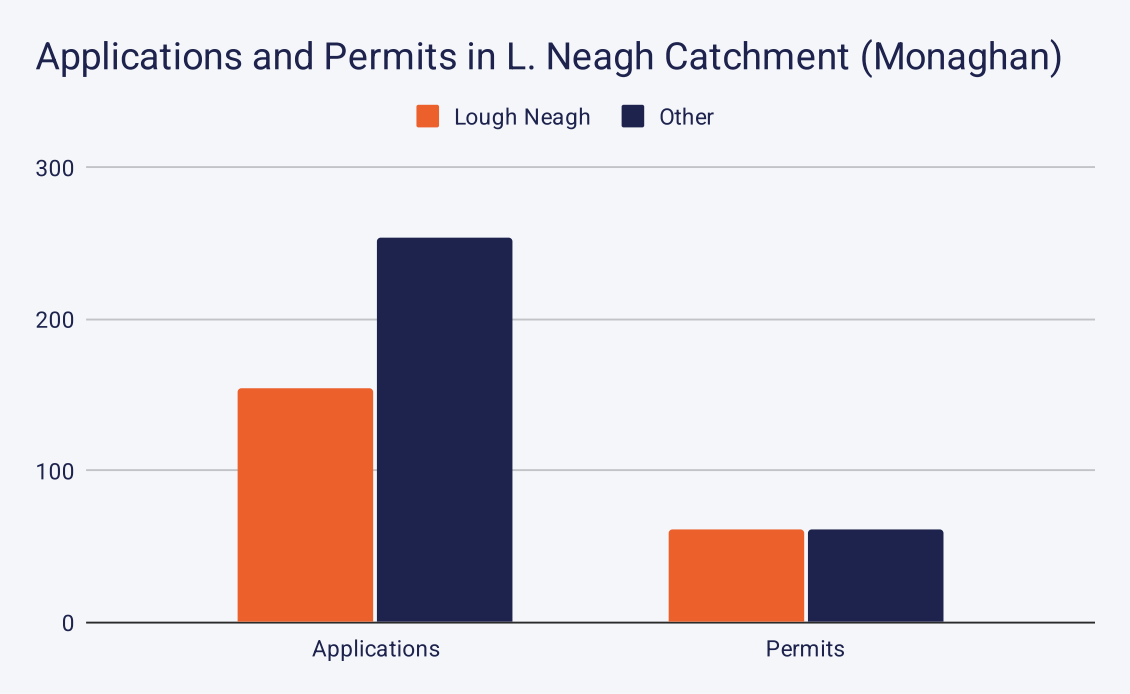
Map of Intensive Permits in Counties Monaghan and Cavan.





Our research found that 50% of intensive permits and 38% of cross-referenced applications in Monaghan are inside the Lough Neagh catchment area. Meanwhile, 31% of County Monaghan is covered by land that drains into Lough Neagh.

Lough Neagh	Applications	Permits
Inside Catchment	154	62
Outside Catchment	254	62



According to a study commissioned by Monaghan Council, in 2020 there were up to 189 poultry farms in the Lough Neagh catchment area of Monaghan, 21 with over 40,000 birds and 81 under the permit threshold (Fehily Timoney 2021). The study estimated in 2021 that 255,217 tonnes of poultry manure was produced per year across County Monaghan. This study aggregated farms by electoral districts, and so counting electoral districts where the majority of their area is within the catchment provides a more conservative estimate. Using this method, the total poultry farms could have counted 102, with 21 requiring intensive permits and 81 under the permit threshold.

Although public information on manure and litter usage from Monaghan and Cavan is scarce, the consensus is that manure is transported to counties further south with more arable land area. According to one poultry industry report, “the majority of litter is transported away from production areas to other parts of the country for spreading on tillage land” (Food Drink Ireland 2023). The Monaghan Council study included a snapshot of poultry manure movements provided by a logistics company, showing a different distribution of manure by counties than the NI export documents revealed (Fehily Timoney 2021).

County	Manure (tonnes)	%
Meath	13856	50
Louth	8269	30
Dublin	2015	7
Carlow	1523	5
Wicklow	1050	4
Westmeath	510	2
Kildare	485	2
Monaghan	152	1

Northern Ireland Water Quality Monitoring:

LAKE NAME	Lough Neagh
EU_CD	UKGBNI3NB0032
Phytoplankton	Moderate
Diatoms	Poor
Macrophytes	Poor
Fish	High
Biological Quality elements	Poor
Total Phosphorus	Bad
Salinity	High
Dissolved Oxygen	Good
Physico-chemistry	Moderate
Hydromorphology	Less than Good
Hydrology	Good
Morphology	Less than Good
Specific pollutants	High
Ecological Status	Poor

Sourced via FOI from DAERA (Quinn 2026)

The following pages survey water quality data across Northern Ireland, with a focus on Lough Neagh. **We found a lack of consistent monitoring across Lough Neagh, with a handful of stations monitored sporadically, and just one long term site.** We asked DAERA for comment on this conclusion, but DAERA declined to comment without reviewing the full report.

One station has been monitored for nutrients long-term, and forms the basis of water quality measurements for Lough Neagh, situated where water flows out of the Lough and towards the north coast. DAERA said this site "is considered most representative of the lake chemistry as it is located at the outflow of the lake", further detail on pages 68 to 70 (Walker 2026). This may mean that data on the quality of water flowing into different parts of Lough Neagh is limited.

Following analysis of raw data provided by DAERA, we found seven measuring stations around the edge of Lough Neagh and one in its centre. There were significant gaps in the data, which were put to DAERA for clarification. The site central to the Lough was part of a pilot testing programme, which was not continued after 2015 (McAleese 2026). One edge site was tested only once, as it may have been a single sample "collected as part of a pollution investigation response". In response to the remaining sites, DAERA said:

> "These were investigative sites. Data gaps from 2012–2015 reflect resource prioritisation toward the core WFD network used for classification. The sites were closed in 2022 due to further resource pressures. Several new investigative sites were opened in 2024 in response to the blue-green algae issue." (McAleese 2026)

The raw data also showed testing stopped at sites around the edge of Lough Neagh in 2022. A DAERA spokesperson told us the decision was made internally to NIEA and "was not documented in correspondence" (Walker 2026). DAERA said "only physicochemical monitoring was stopped, as this data was not included in WFD assessments".

DAERA also reduced testing frequency across Northern Ireland in 2015 and 2016, moving to a "temporary quarterly programme" in response to "resource pressures", before this "was reversed in 2017 due to excessive data gaps" (McAleese 2026). In response to data gaps for rivers feeding into Lough Neagh, DAERA said:

> "Occasional gaps are typically caused by adverse weather. Broader reductions in 2010, 2013–2016, and 2020 reflect resource pressures, the temporary quarterly programme (2015–2016), and Covid-19 (2020)." (McAleese 2026)

Overall, DAERA said:

> "NIEA monitors nutrients at freshwater sites across Northern Ireland for a variety of purposes. The core Water Framework Directive (WFD) network is sampled monthly to assess status and long-term trends. Additional sampling may occur following pollution incidents, for short-term projects, or to support classification tool development. Data gaps may arise due to resource constraints, health and safety issues, or adverse weather, with priority given to the core network." (McAleese 2026)

Water Quality Glossary:

High levels of nutrients (**eutrophication**) in a waterbody can boost algae and plant growth, particularly when temperatures are high, upsetting the balance of a stable local ecosystem. **Algae blooms** can block light from other plants and reduce oxygen levels in the water, suffocating insects and animals.

Algae can take different forms, from tiny cells that colour the water, to strings or mats of longer multi-cellular algae. Distinctively **blue-green** blooms, like those that occurred in Lough Neagh during summer 2023, are a form of bacteria that can photosynthesise: cyanobacteria (DAERA 2026f). In practice, blue-green algae blooms are toxic to humans and animals.

(Copernicus 2023)

Total Oxidised Nitrogen (TON) is a measure of nitrate and nitrite added together. Nitrate can cause eutrophication at elevated levels (Environment Agency 2022). Nitrite is a less stable and short-lived form of nitrogen, converted to nitrate. Some countries test for TON for their WFD monitoring (EEA 2009), which predominantly acts as a measure of nitrate due to this conversion.

Total Phosphorus (TP) is the measure of all phosphorus in water. This may have been washed off from fields, entered through groundwater, or disturbed from the river/lake bed during storms or sand dredging (Phosphorus can lead to eutrophication, and **Soluble Reactive Phosphorus (SRP)** particularly contributes to algae blooms, a nutrient form that is easily accessible to algae (NI Audit Office 2024).

The **Water Framework Directive (WFD)** is the main European-wide water monitoring scheme, derived from EU legislation. The WFD continues to be relevant post-Brexit, and "the regulations place a responsibility on Northern Ireland to try and ensure that all inland and coastal waters reach at least "good status" (DAERA 2026e), restore waterbodies and halt decline (EEA 2026).

Several types of monitoring stations are used in this scheme, with core sites labelled as ***surveillance*** stations. According to the NIEA, "surveillance monitoring aims to allow assessment of long-term changes in a waterbody. The WFD requires that all quality elements are monitored at surveillance sites" (NIEA 2026).

We requested a full water quality monitoring dataset from DAERA as published datasets ended in 2018. Similarly to the published dataset, the monitoring results are raw data that has not been processed by DAERA or converted into a format for classifying water quality status. Results of these charts should be seen as indicative and may not match official monitoring publications. However, our SRP data closely matches the latest environmental statistics report (NIEA 2025a). We used a DAERA list of river surveillance monitoring sites to filter our data (NIEA 2026), and recreate the published SRP chart (page 31), the trends of both charts are closely matched.

Largest Lakes Comparison:

We compared the number of long term (WFD surveillance) water quality monitoring stations across the largest natural lakes in Ireland and Great Britain: Lough Neagh, Lough Corrib, Loch Lomond, Lake Windermere and Llyn Tegid in order of surface area (UKCEH 2016; IFI 2022).

We asked DAERA, the Irish Environmental Protection Agency, the Environment Agency, Scottish Environmental Protection Agency, Natural Resources Wales many long term surveillance sites are present in each respective lake under the Water Framework Directive (EA 2026; NRW 2026; EPA 2026). SEPA filed our inquiry as a Freedom of Information Request and subsequently did not meet the publication deadline. Instead, we sourced a dataset of water monitoring stations from SEPA's data page (SEPA 2026).

Lakes and rivers across the isles are split into waterbodies for monitoring and reporting purposes. Lough Corrib, Loch Lomond and Lake Windermere are each split into two waterbodies, meaning there are two sets of long-term (surveillance) results for the water quality in these lakes. Lough Neagh and Llyn Tegid are each a single waterbody from a monitoring point of view, despite Lough Neagh being 90 times larger than Llyn Tegid and over double the size of Lough Corrib, the closest lake in surface area in Great Britain and Ireland. This may mean that Lough Corrib, Loch Lomond and Lake Windermere have more representative surveillance evidence and WFD reporting.

The EPA said* that Lough Corrib is classed as two waterbodies, both of which are considered surveillance lakes. Lough Corrib, across both waterbodies, has 14 sites "which are monitored for a variety of chemical parameters". The EPA noted that priority substances may also be tested for at sites.

The EA said* that in Windermere there are 11 surveillance sites, including both waterbodies, and that "each site monitors a different element for the Water Framework Directive (WFD)". EA also pointed out that extensive monitoring has historically taken place and continues to do so in Windermere, beyond WFD requirements.

Our analysis of SEPA data on Loch Lomond found 11 sites marked as surveillance WFD sites across the two Lomond waterbodies. 30 additional WFD connected, but not surveillance, lake monitoring sites were found, and 33 other lake sites listed unconnected to WFD.

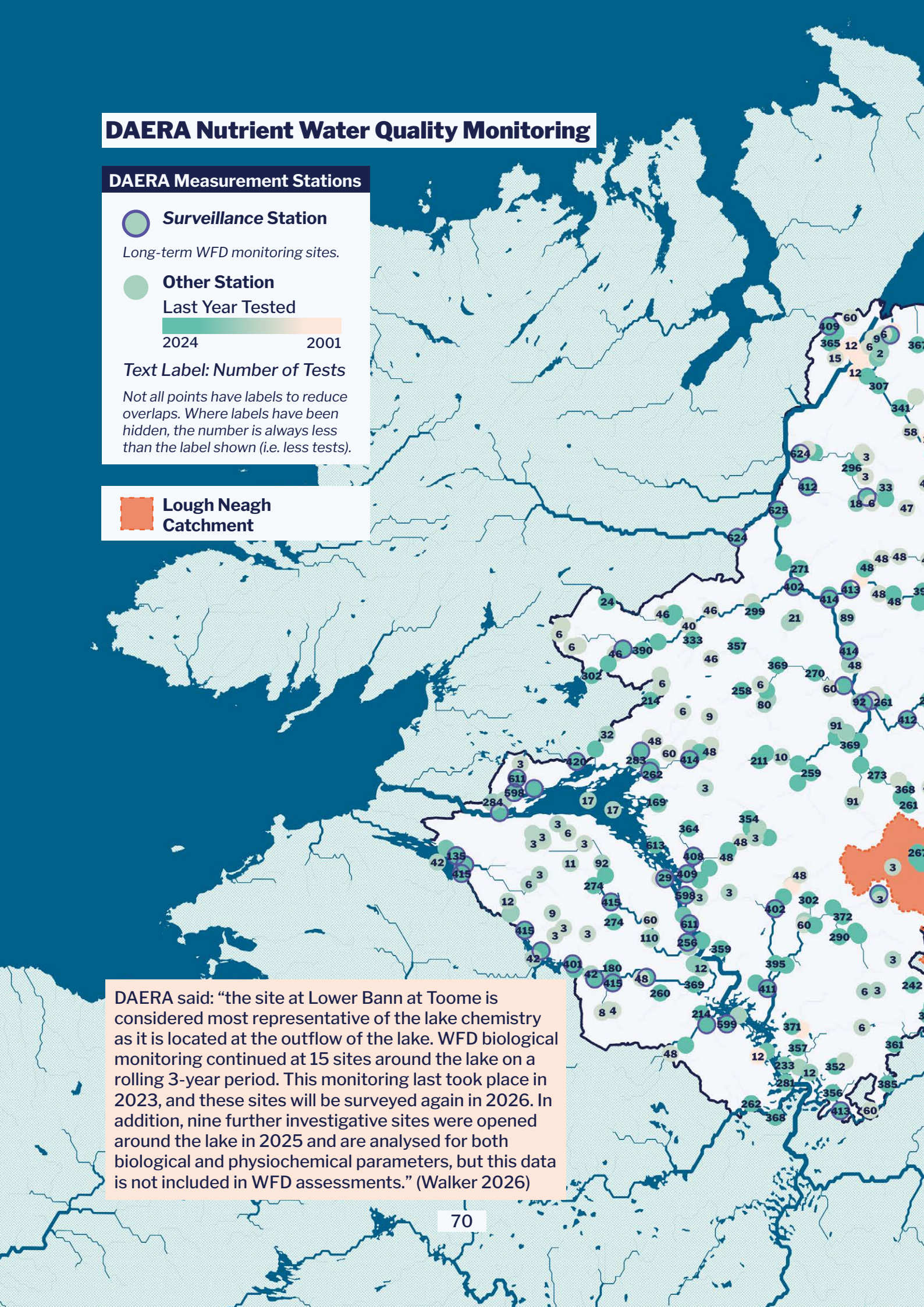
NRW said* that in Llyn Tegid for WFD surveillance purposes "there are 2 fixed sites – one where water quality and phytoplankton is sampled, and one for the lake depth profiles". They also pointed out that additional monitoring takes place across the lake and site location may change to collect a robust evidence base.

DAERA said "there is one long-term WFD chemical surveillance site located at the Lower Bann at Toome", which is tested for chemicals and phytoplankton. DAERA also noted "15 WFD biological surveillance sites distributed around [Lough Neagh]". Outside of WFD, DAERA said nine more investigative sites have been established for "both biological and physiochemical parameters". On the single surveillance point, DAERA said that "the site at Lower Bann at Toome is considered most representative of the lake chemistry as it is located at the outflow of the lake" (Walker 2026). We asked DAERA for comment on this lake comparison, but DAERA declined to comment without reviewing the full report.

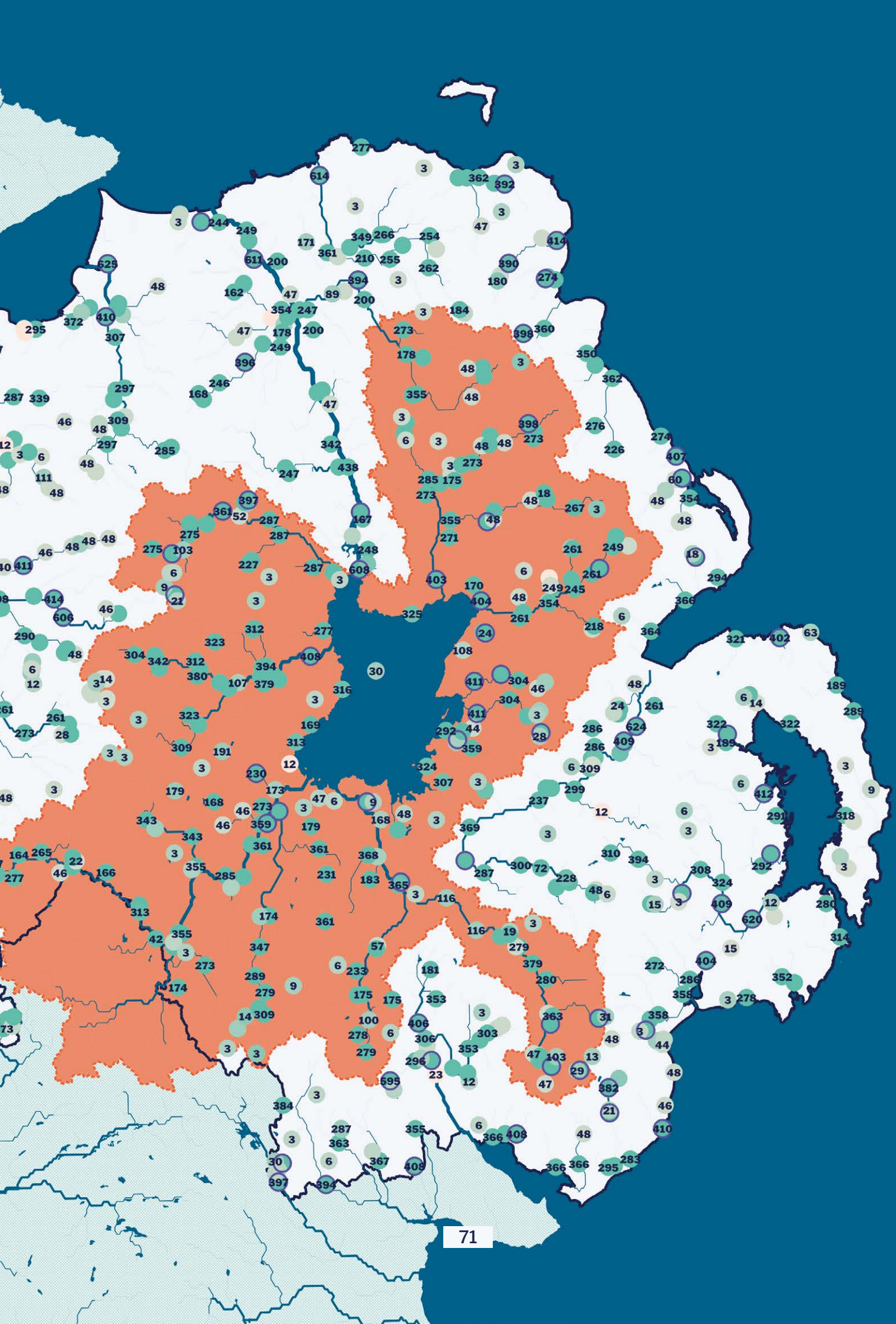
**See appendix for full statements from the respective regulators.*

Lakes have been drawn to the same scale: size as shown can be compared directly.

DAERA Nutrient Water Quality Monitoring



DAERA said: “the site at Lower Bann at Toome is considered most representative of the lake chemistry as it is located at the outflow of the lake. WFD biological monitoring continued at 15 sites around the lake on a rolling 3-year period. This monitoring last took place in 2023, and these sites will be surveyed again in 2026. In addition, nine further investigative sites were opened around the lake in 2025 and are analysed for both biological and physiochemical parameters, but this data is not included in WFD assessments.” (Walker 2026)

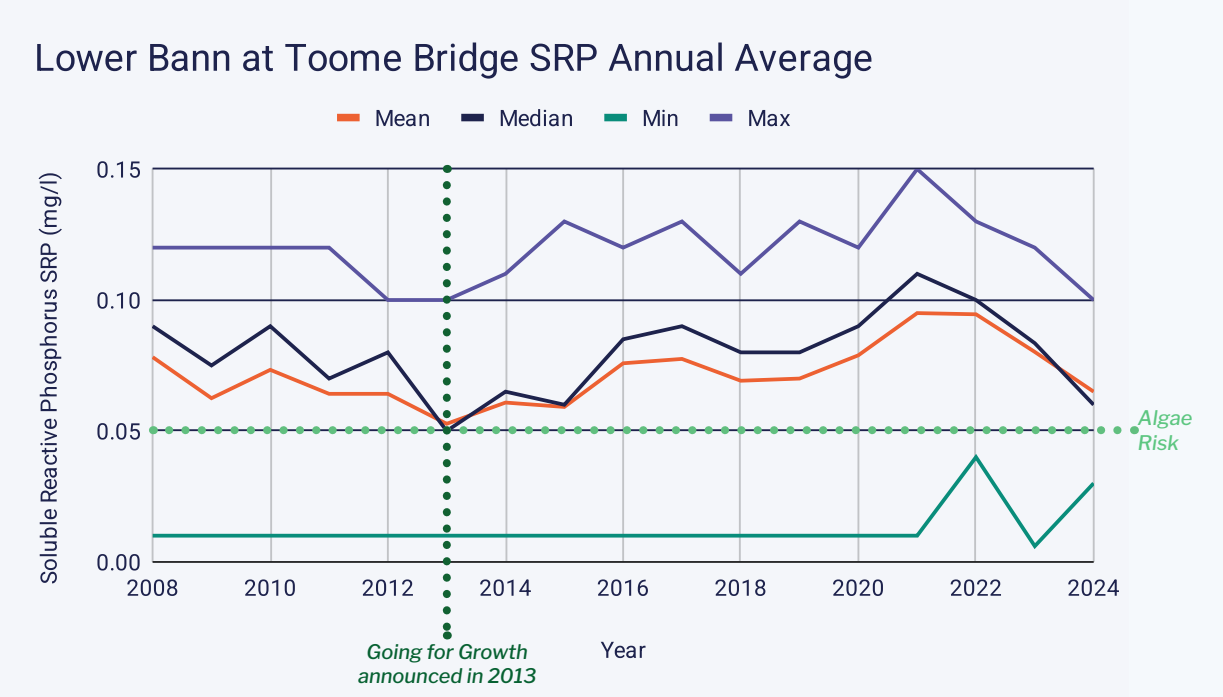


Lough Neagh *Surveillance* (long-term) Monitoring Station:

Algae blooms have previously been caused in Lough Neagh by levels of soluble reactive phosphorus over 0.05 mg/l* (Gornall 2026). According to DAERA monitoring data at the Toome Bridge outflow of Lough Neagh, which is the only long-term surveillance station on the lake, the mean and median annual SRP levels have been over 0.05 mg/l since 2012.

While SRP was reducing before 2013, recordings increased by 47% mean and 80% median from 2013 to 2017. 2021 saw the most dramatic elevation from 2013, at 80% mean and 120% median. Levels have since reduced in 2024 to 23% mean and 20% median over 2013 readings.

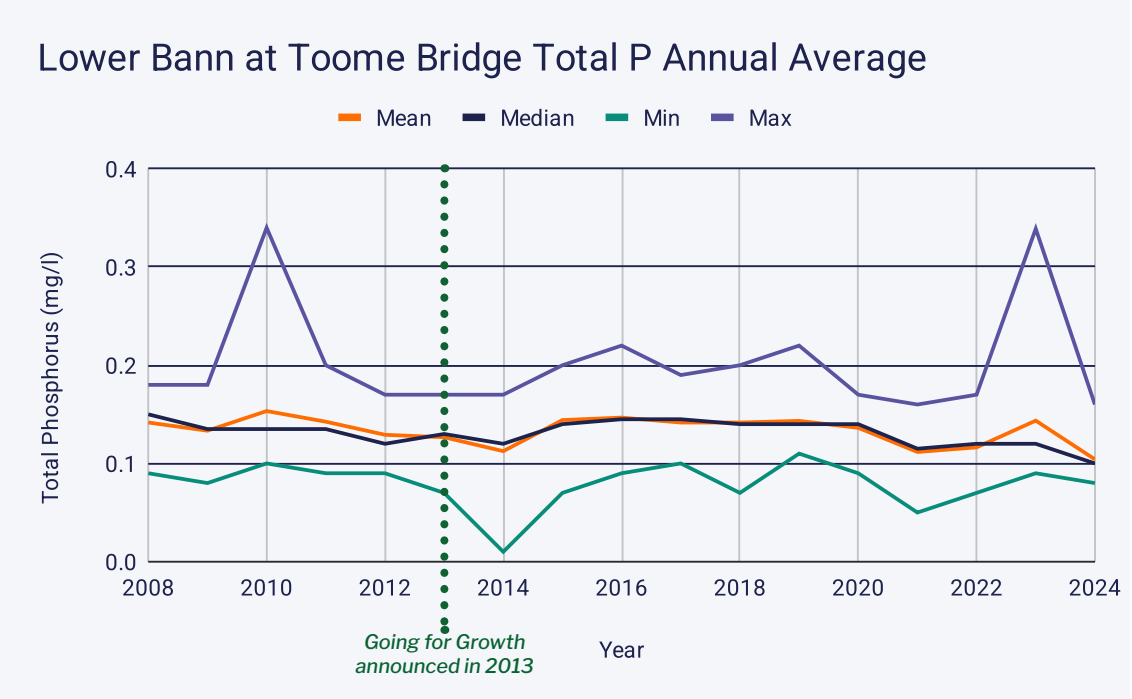
SRP levels reduced from 2008 to 2013, with their lowest at 0.053 and 0.05 for mean and median respectively in 2013. Post 2013, SRP trend rose, reaching a peak in 2021 and 2022, at 0.095 mean and 0.11 median in 2021. The second highest peak was in 2017, with 0.78 and 0.09 mg/l of SRP. Levels have consistently reduced since 2022, falling to 0.065 and 0.06 in 2024.



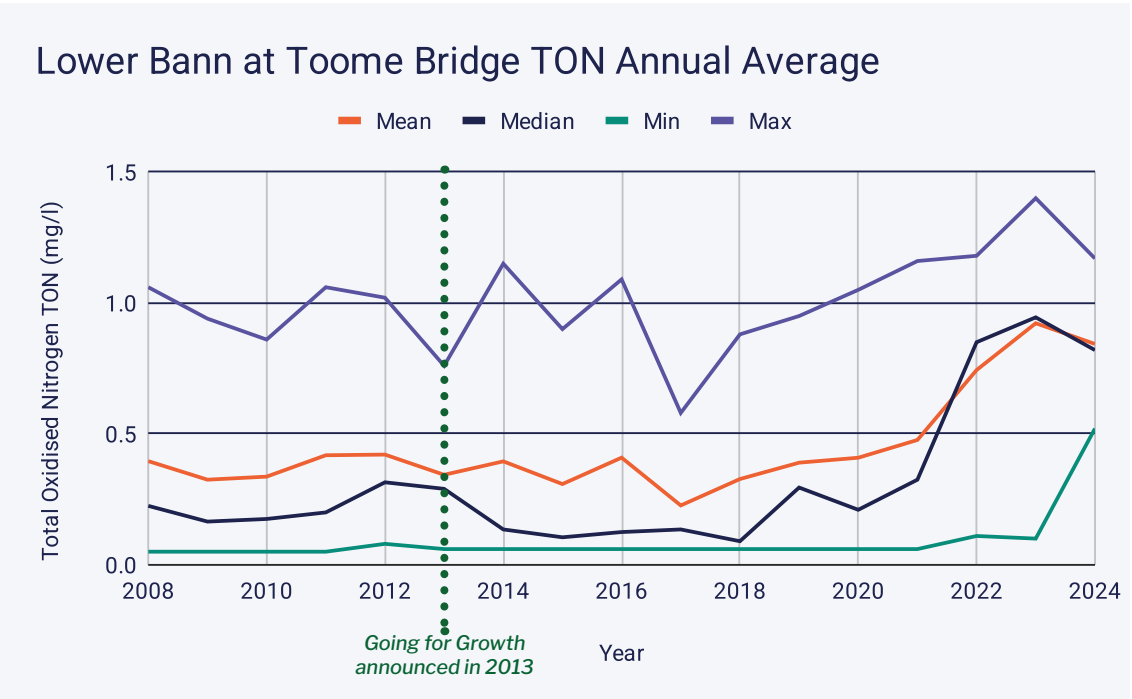
There was a trend of Total P reducing prior to 2012 to 2014. Total P levels were elevated on average from 2015 until 2020, 30% mean and 21% median increase when comparing 2014 to 2016, after which Total P reduced, except from a spike of 29% mean and 4% median in 2023.

Average Total P levels were lowest in 2024 at 0.1 mg/l. The second and third lowest mean levels were in 2021 and 2014, at 0.112 and 0.113 respectively. The median levels were low in 2021 at 0.12, and at 0.12 in both 2012 and 2014. Levels of mean Total P were highest in 2010 at 0.153, followed by 0.146 in 2016 and 0.144 in 2015. Aside from a highest level in 2008, at 0.155, the median Total P was at its second most elevated levels in 2006, 2016 and 2017 at 0.145. Between 2015 and 2019, Total P did not fall below an annual average of 0.14.

**SRP threshold provided by Les Gornall, Process Consultant at AD Ingenuity LLP.*

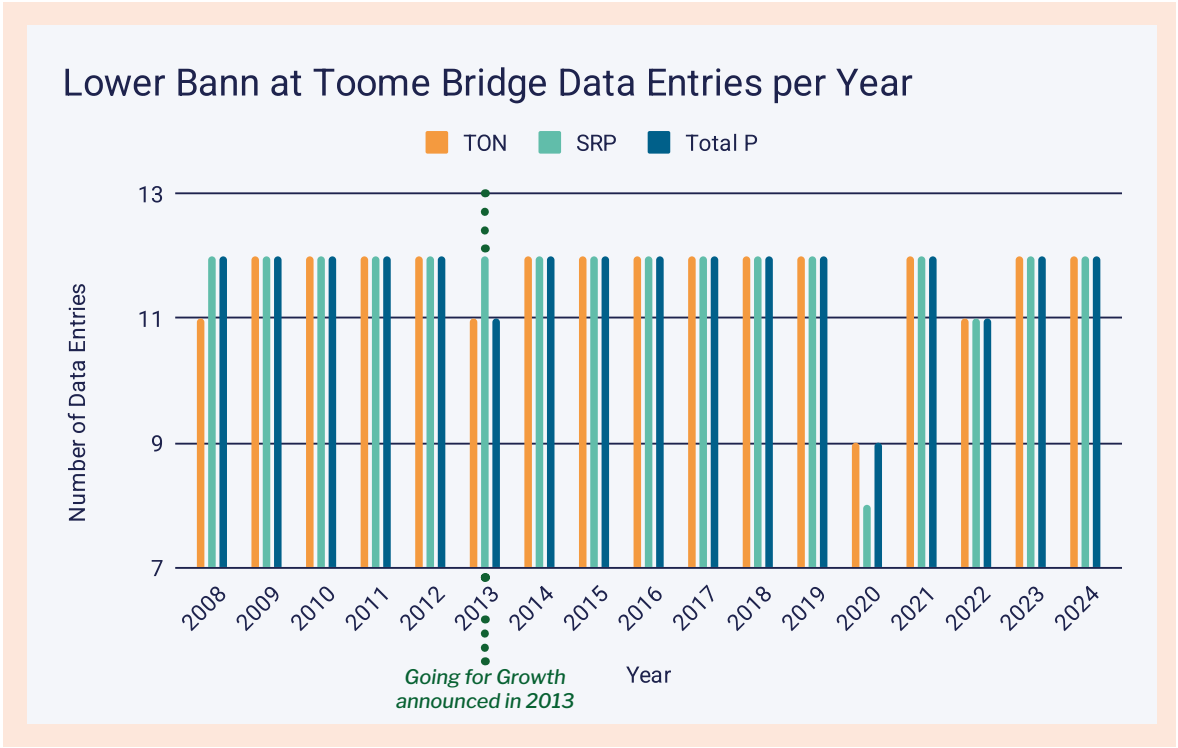


TON measurements fluctuated but remained stable between 2008 and 2020, when compared to a rapid increase from 2021 until 2023. Mean TON was lowest in 2017, and median in 2018, with a consistently low median value between 2014 and 2018. TON levels rose by 106% and 290% mean and median respectively from 2020 to 2023.



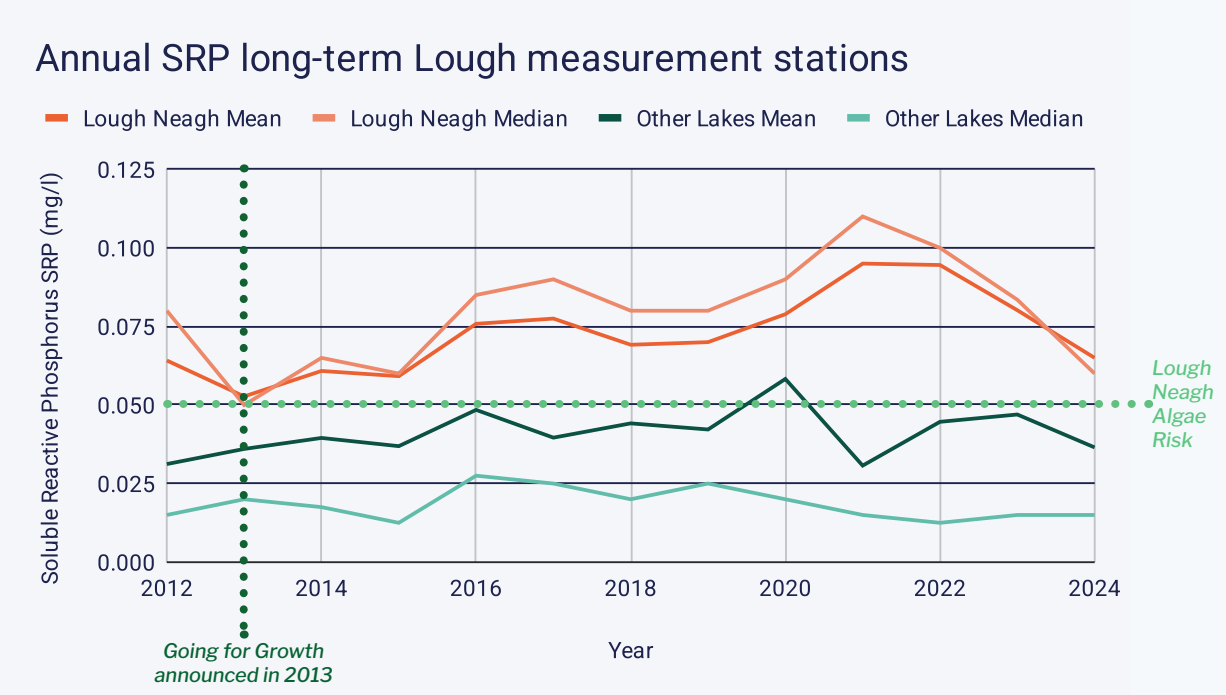
We asked DAERA for their understanding of the relationship between SRP readings and algae bloom risk in Lough Neagh, but DAERA declined to comment without reviewing the full report.

Monitoring at Toome Bridge was significantly reduced in 2020 due to the Covid-19 pandemic, a reduction seen across all monitoring stations. Chart visible overleaf.

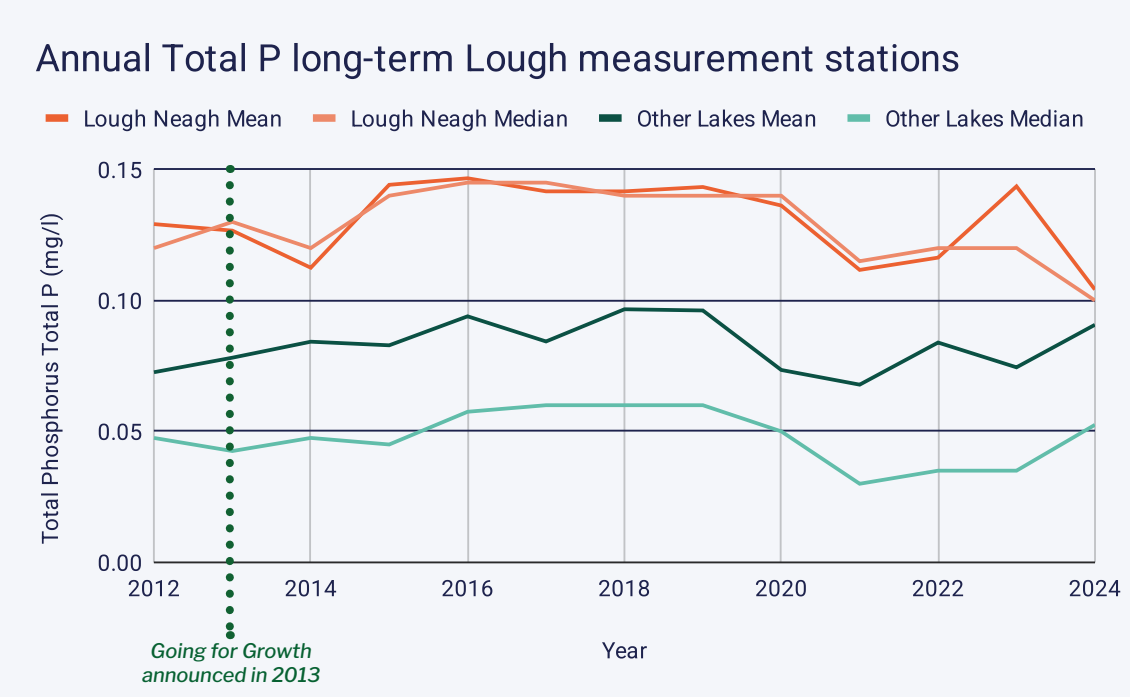


Lough Neagh Compared to Other Lakes:

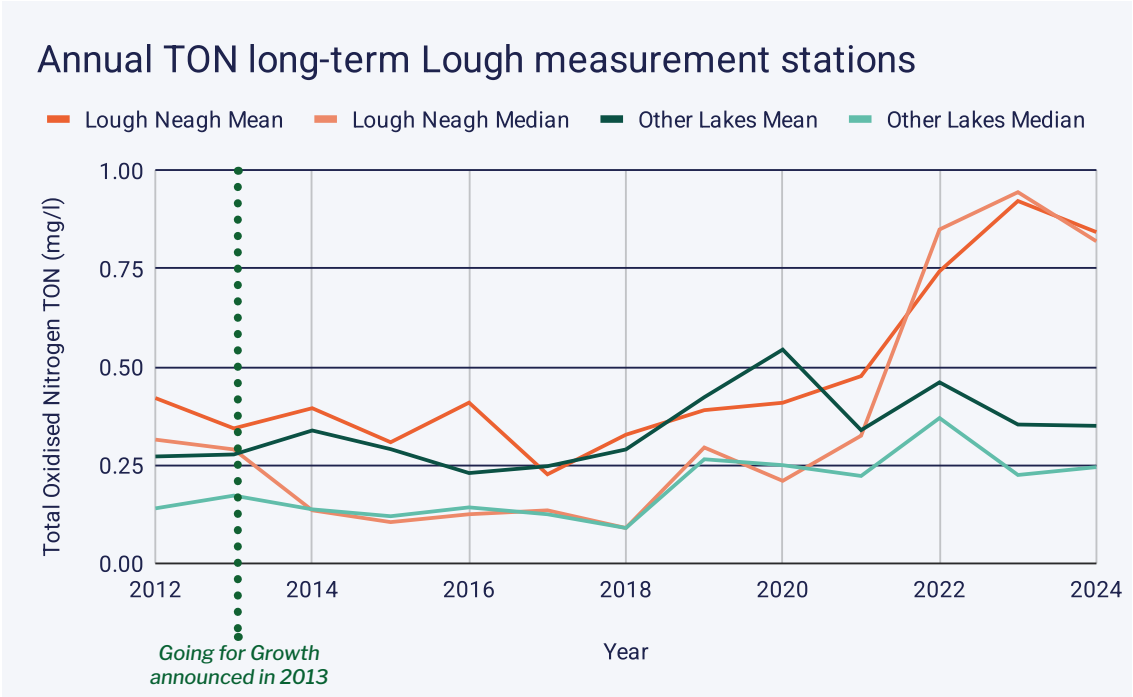
The following charts track long-term surveillance lake monitoring stations, (stations confirmed by DAERA) comparing annual averages for Lough Neagh (at Toome Bridge) to the average of all other lake stations (excluding Toome Bridge and abbreviated here as AOL). Unlike Lough Neagh, the average SRP only rises above the 0.05mg/l algae risk level in one instance since 2012, in 2012 with a mean 0.058 mg/l (however reliability of results in 2020 were reduced by the pandemic). Mean and median SRP diverged most between Lough Neagh and AOL in 2021, with a 0.064 mean difference and 0.095 median difference as SRP increased in Lough Neagh and decreased on average across AOL.



From 2012 to 2024, mean and median levels of Total P were higher in Lough Neagh than the average of AOL in Northern Ireland. 2023 saw the greatest difference in mean Total P, a 0.069 mg/l gap, due to a Lough Neagh spike and a decrease elsewhere. For median Total P, the greatest divergence was in 2015 with a 0.095 difference. Levels increased dramatically in Lough Neagh but remained level for the average of AOL. Both Lough Neagh and AOL had raised levels of Total P after 2015, reducing again in 2021.



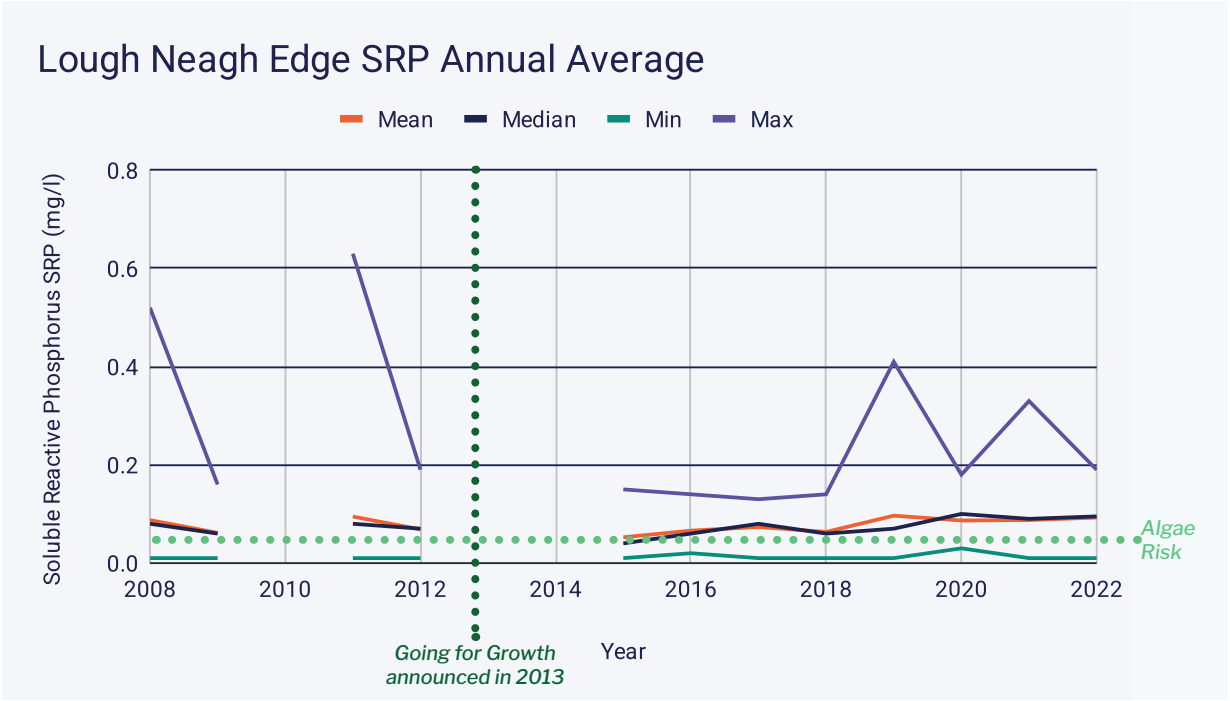
Unlike phosphorus, the highest TON levels fluctuate between Lough Neagh and AOL from 2014 until 2021. The greatest difference for both mean and median was in 2023, with TON in Lough Neagh by a 0.57 mg/l and 0.72 mg/l difference respectively. This divergence started and increased after 2020, and average TON levels remain much higher in Lough Neagh than AOL in 2024.

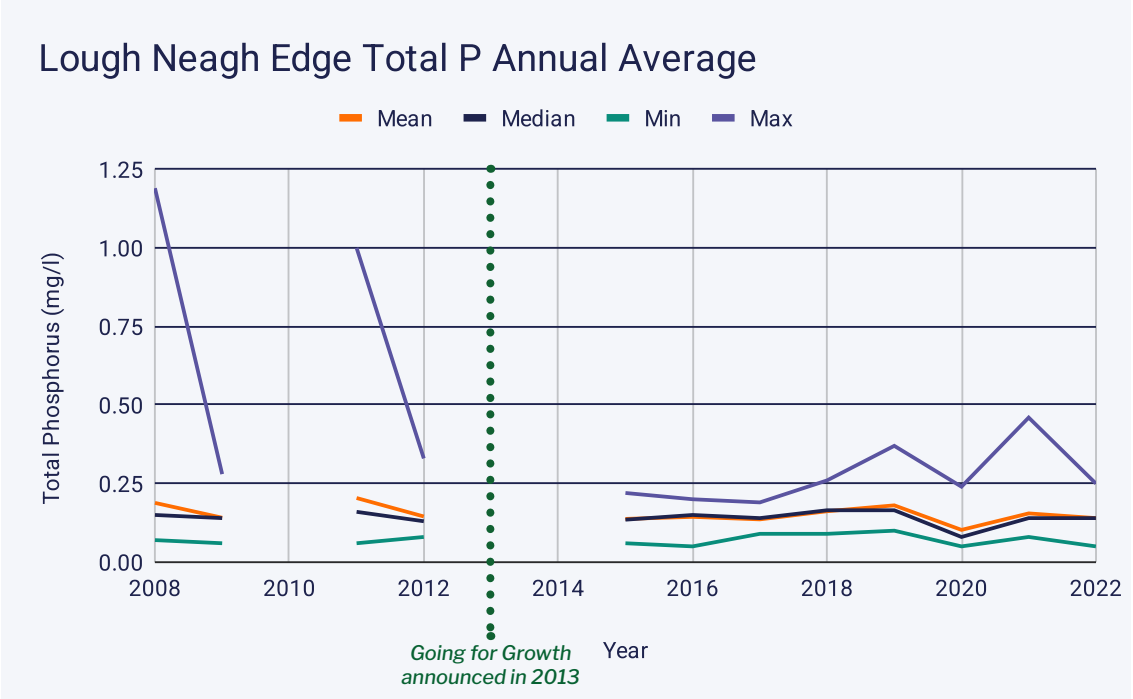


Measurements From the Edges of Lough Neagh:

Testing was less frequent at the edges of Lough Neagh, as DAERA said these are not long term monitoring sites. Data from these stations may indicate water quality from rivers flowing into Lough Neagh, and the charts exclude the long-term monitoring site at the Toome Bridge outflow.

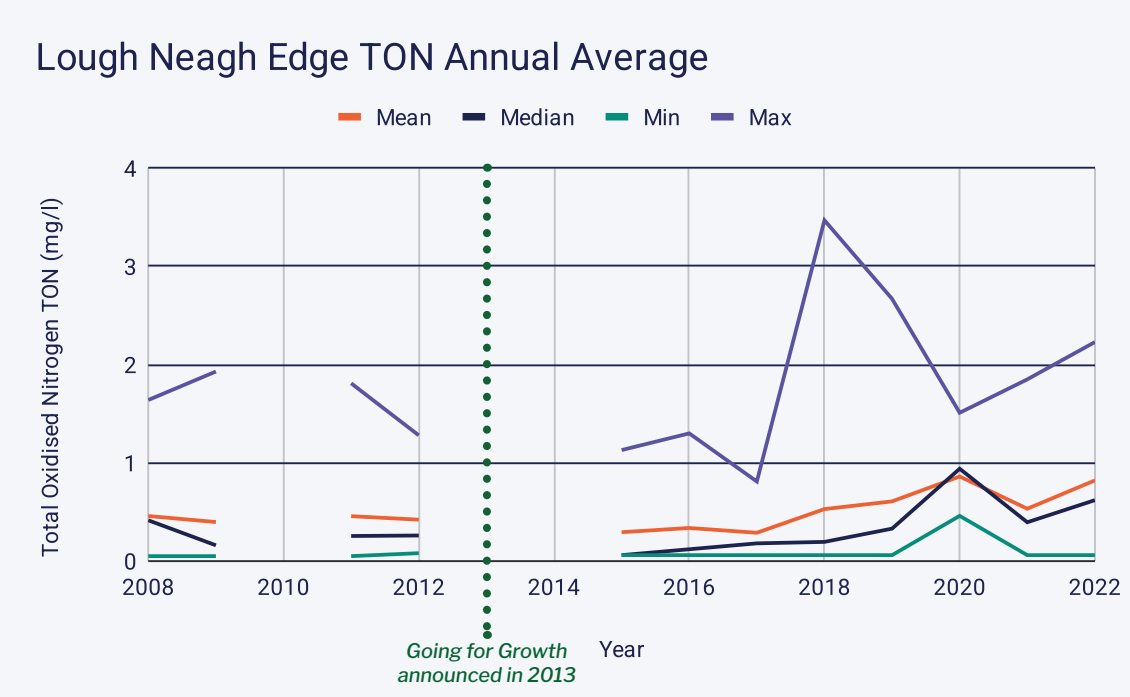
Mean SRP measurements were highest in 2019 at 0.096 mg/l, and for median SRP in 2021 to 2022, at 0.09 and 0.095. In 2022, mean SRP was 35% above 2012 readings, and 36% greater in median. SRP was lowest in 2009 and 2012, around 0.06 for both averages in 2009 and 0.07 in 2012.

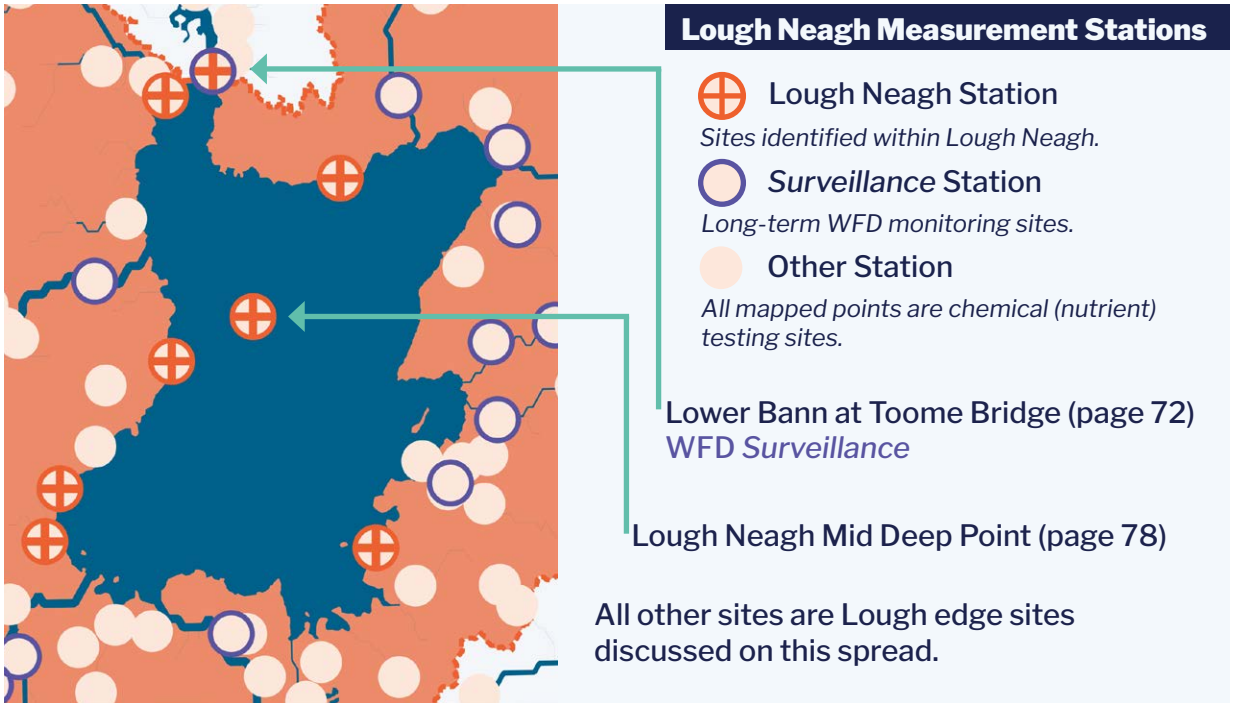




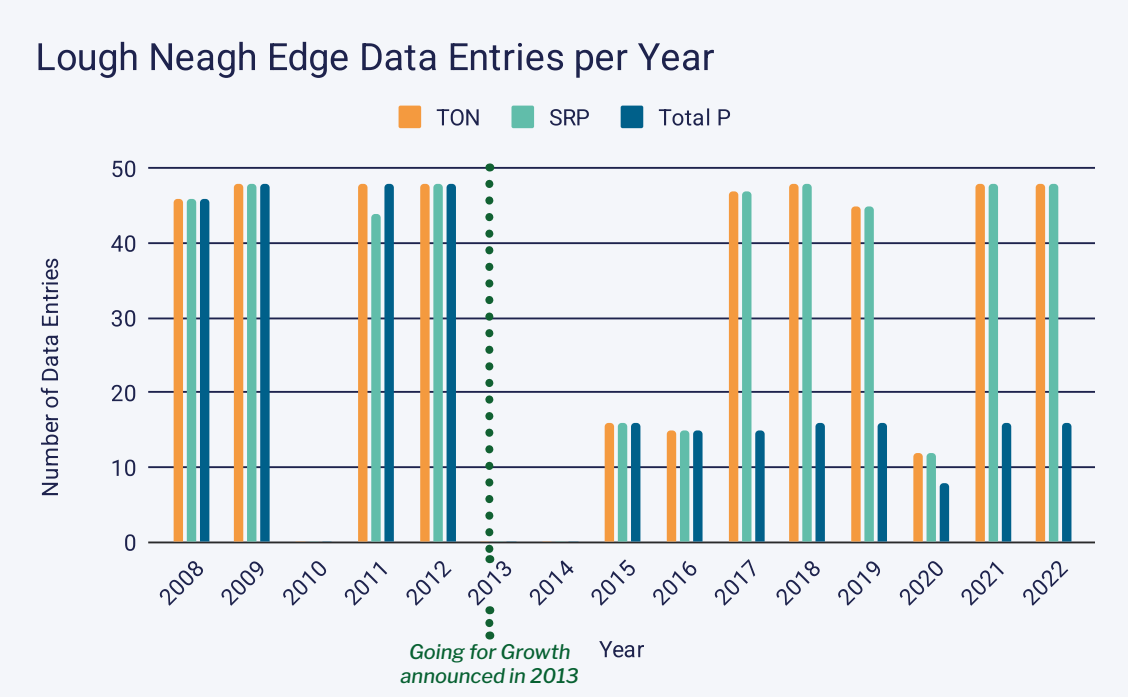
While mean Total P was highest in 2011 at 0.2 mg/l, the median was most elevated between 2018 and 2019, at 0.17. Mean and median were lowest in 2020, at 0.1 and 0.08 respectively, however testing was significantly reduced in 2020 which affects how comparable this result is. The second lowest mean was in 2017 at 0.136 and median at 0.13 in 2012. Mean SRP increased by 24% from 2012 to 2019, with median up by 27%. These levels fell to -4% mean and 8% median in 2022 when compared to 2012 readings.

TON was at its highest in 2020, at 0.86 and 0.94 for mean and median respectively, however the reduction in testing frequency undermines these results. The secondary peak was in 2022, at 0.82 mean and 0.62 median. The lowest TON recorded was in 2015, at 0.29 mean and 0.06 median. Levels of TON increased by 95% mean and 138% median from 2012 to 2022.



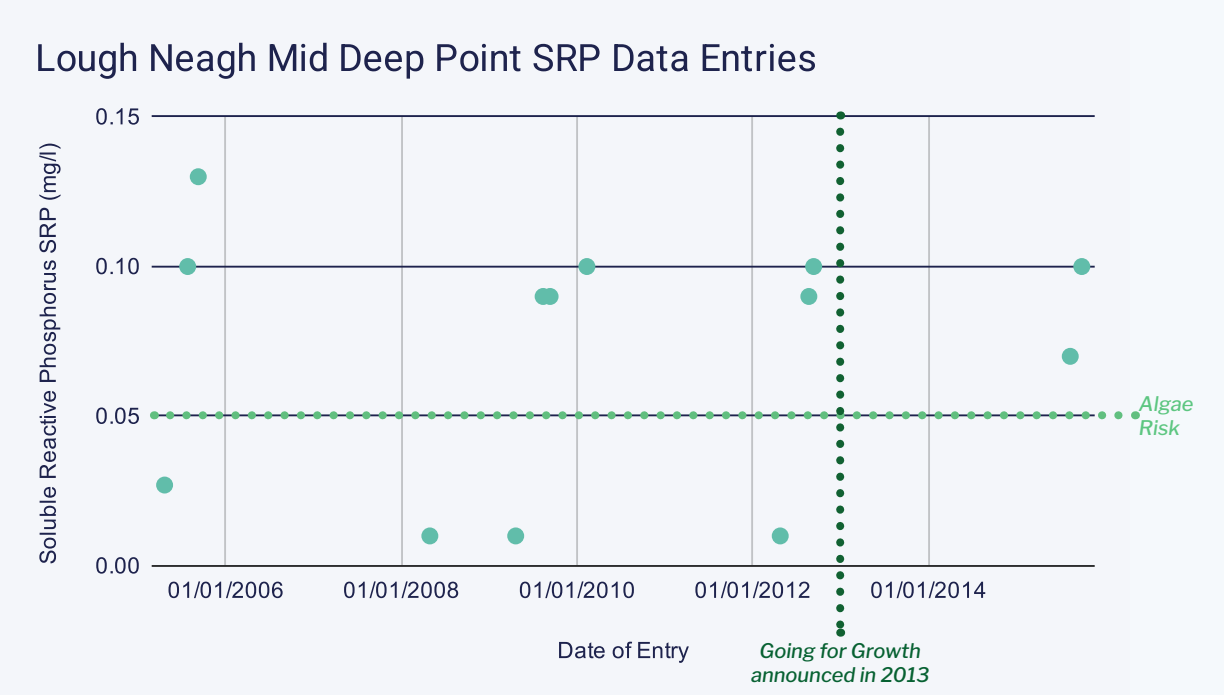


No testing occurred at the edges of Lough Neagh in 2010, 2013, and 2014. Testing fell by two thirds in 2015 compared to 2012 (no tests in 2013-2014) and reduced further by one test in 2016. Testing in 2020 reduced by almost three quarters for TON and Total P due to the Covid-19 pandemic, with SRP tests cut by half. While TON and Total P test frequency recovered to pre-2013 levels in 2017-2019, SRP has remained at a third of the previous number of tests per year. Please see page 66 for DAERA's responses.



Measurement Site Near the Centre of Lough Neagh:

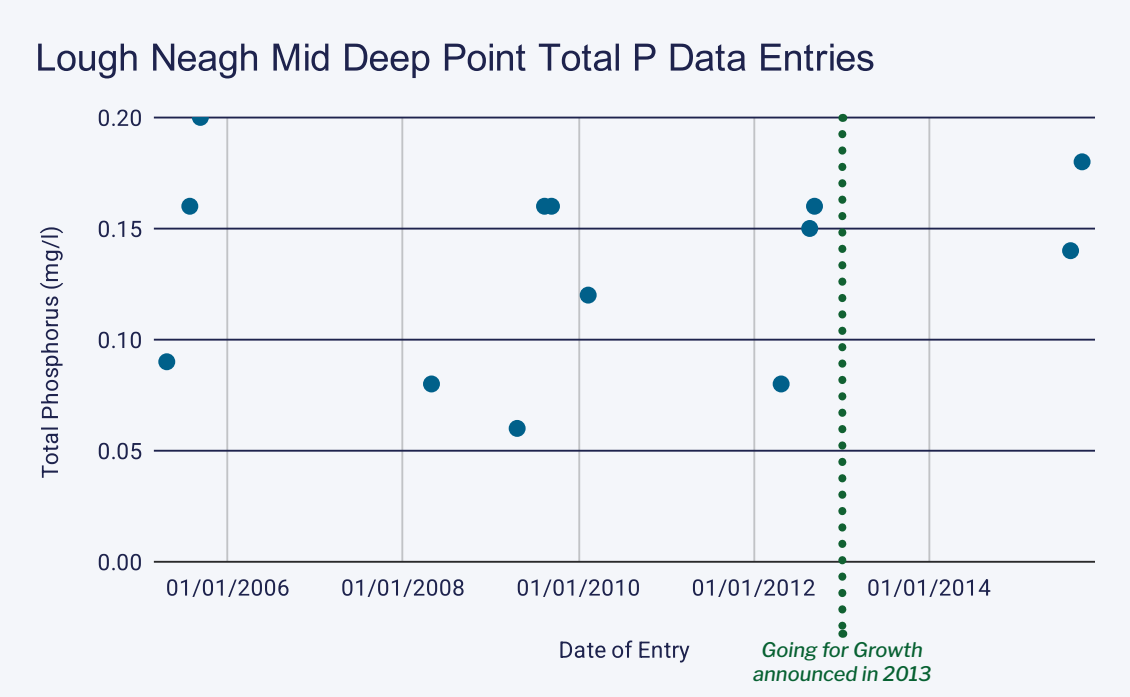
One measuring site was situated centrally in Lough Neagh according to the full water quality data provided by DAERA. The site was tested infrequently between 2005 and

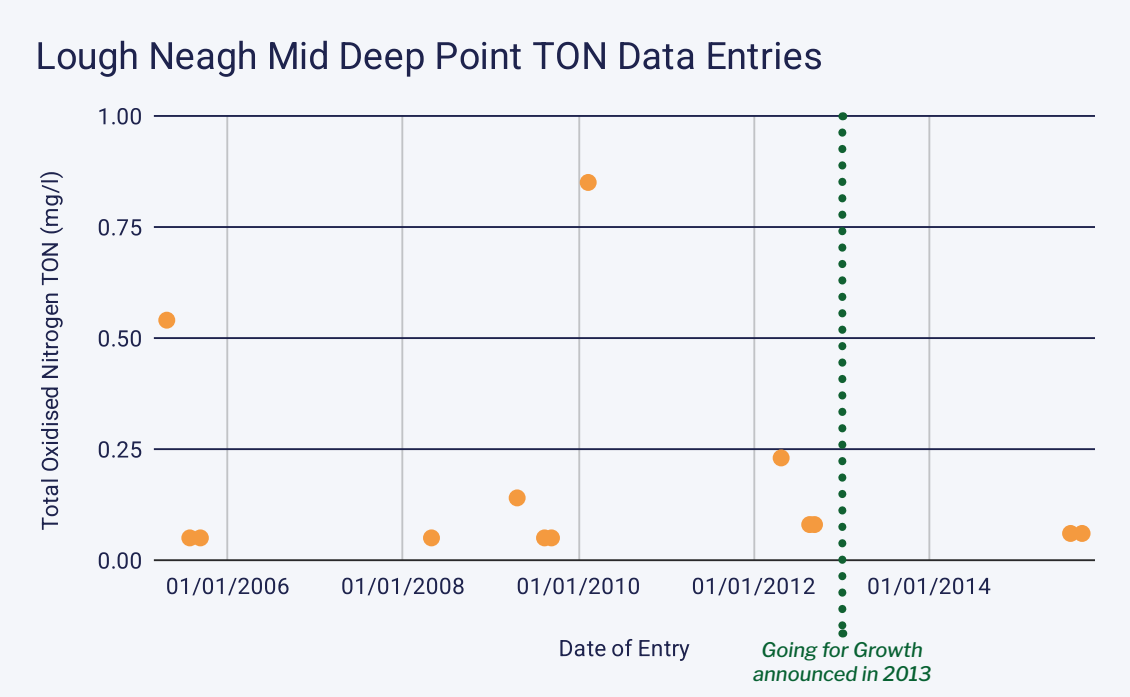


2015, we asked DAERA to clarify this. A DAERA spokesperson said:

> "Nutrients were sampled from 2006–2015 to support development of a profundal invertebrate classification tool. As no relationship was found, the tool was not progressed and sampling ceased in 2015." (McAleese 2026)

A total of 69% of the SRP measurements taken at the mid-deep point station were over the 0.05mg/l SRP threshold for algae bloom risk. Data also showed 31% of SRP readings were between 0.09 and 0.1 mg/l, while the highest reading was during 2005 at 0.13. The highest Total P reading was during 2005 at 0.2 mg/l and the most common reading was 0.16 mg/l. For TON the highest reading was 0.85 mg/l during 2010 and 62% of measurements taken were between 0.05 and 0.06 mg/l.

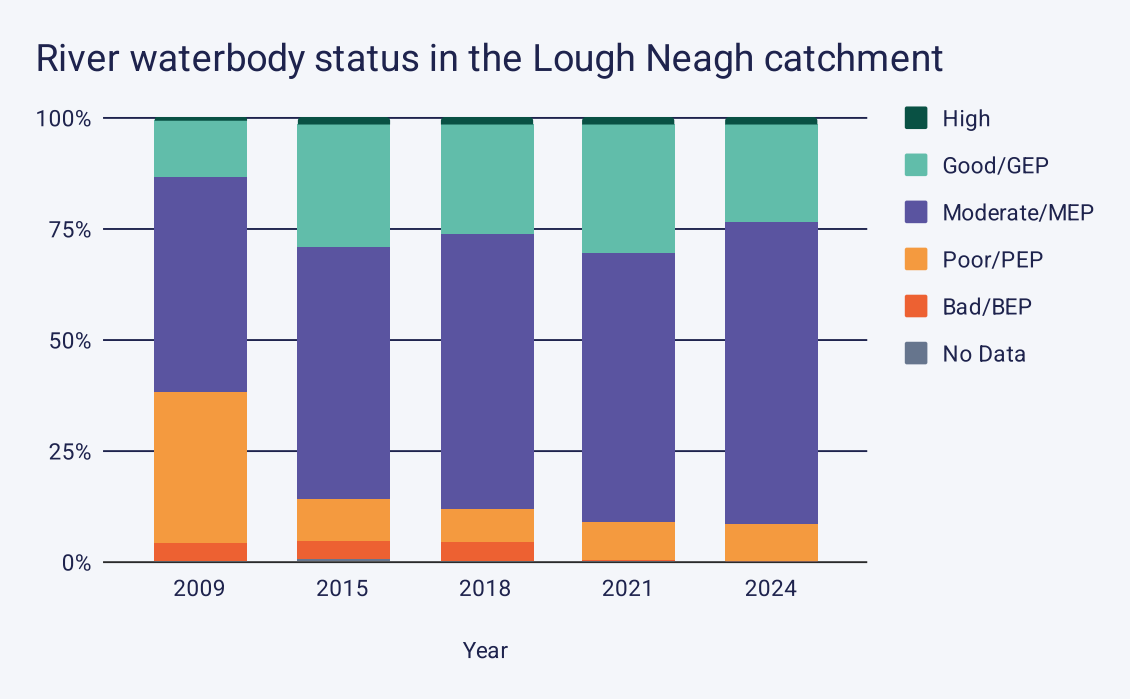


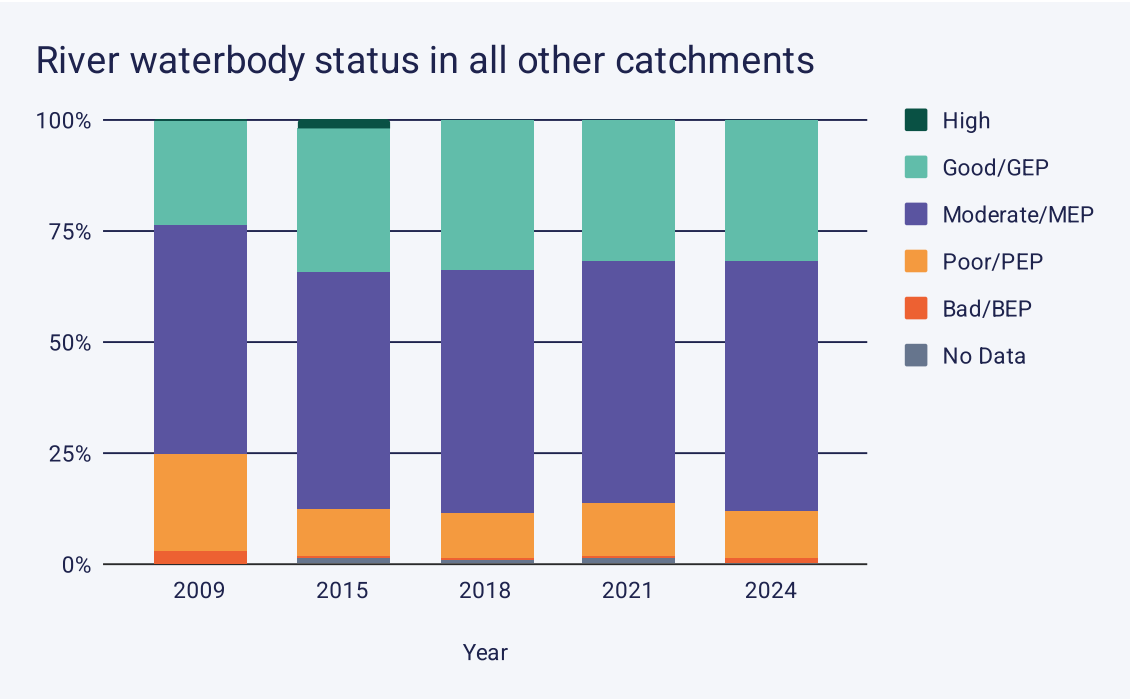


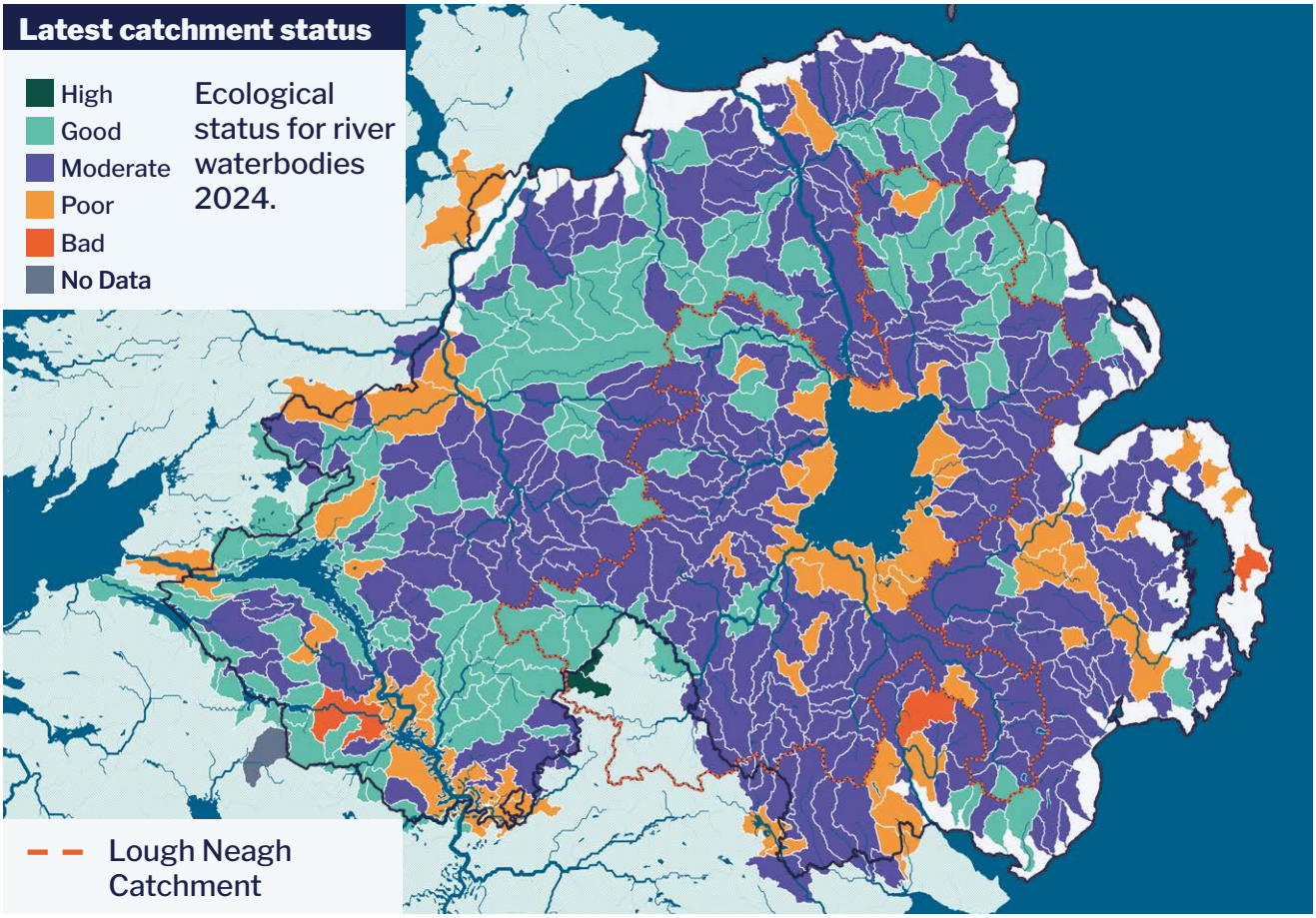
Northern Ireland River Ecological Status:

The Northern Ireland Environment Agency (NIEA) monitors water quality across 450 rivers and 21 lakes. Results from surveillance monitoring stations, which are prioritised as the core long term testing programme, are used to classify river and lake waterbodies by ecological status and chemical status. *These statistics relate to river waterbodies only, referred to here as rivers.*

According to data from 2024, the Lough Neagh catchment area contains less rivers classed as bad or poor status than the rest of Northern Ireland. 12 rivers compared to 36 in other catchment areas. While two are in high ecological status, not achieved by any







rivers outside of the Lough Neagh catchment, the majority of rivers are classed as moderate at 68%, and more so than outside of the Neagh catchment area at 56%. Less rivers are classed as having a good status, 22% inside compared to 32% outside.

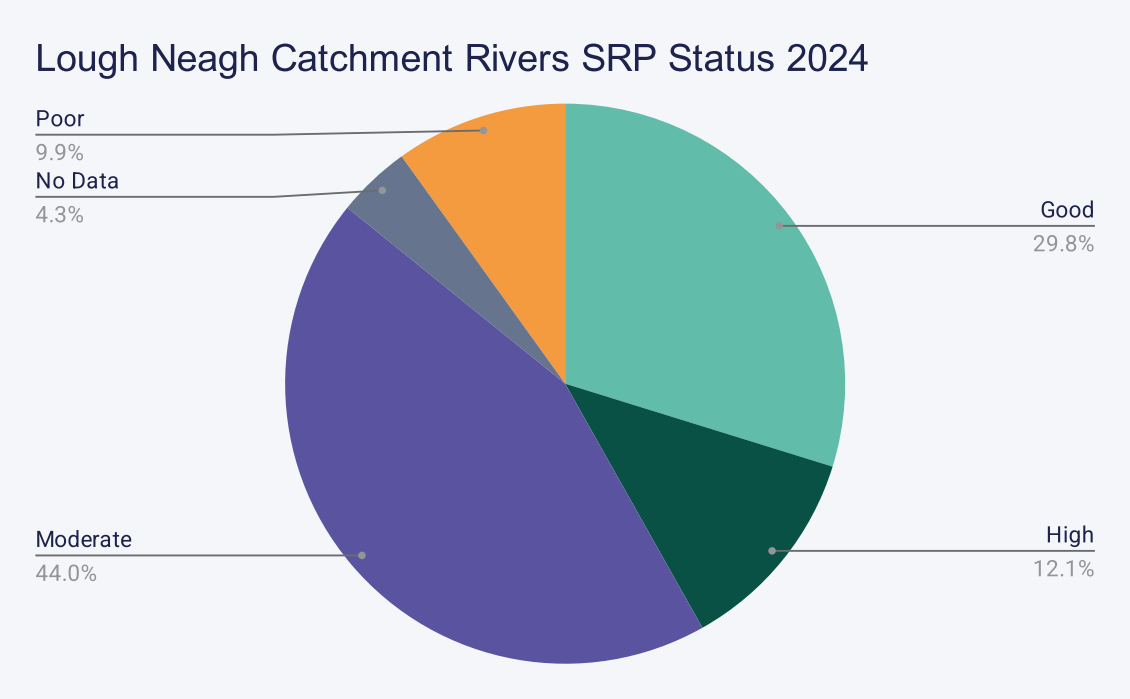
The Lough Neagh catchment shows more improvement from 2019 to 2024 than areas outside of the catchment, in terms of ecological classification. There was a greater reduction of rivers classed as bad or poor within the Neagh catchment, notably a 25% reduction in poor status compared to 11% outside of the catchment area. Marginally more rivers were classed as good or high inside compared to outside. The number of rivers classed as moderate increased by 20% inside the catchment compared to 5% outside.

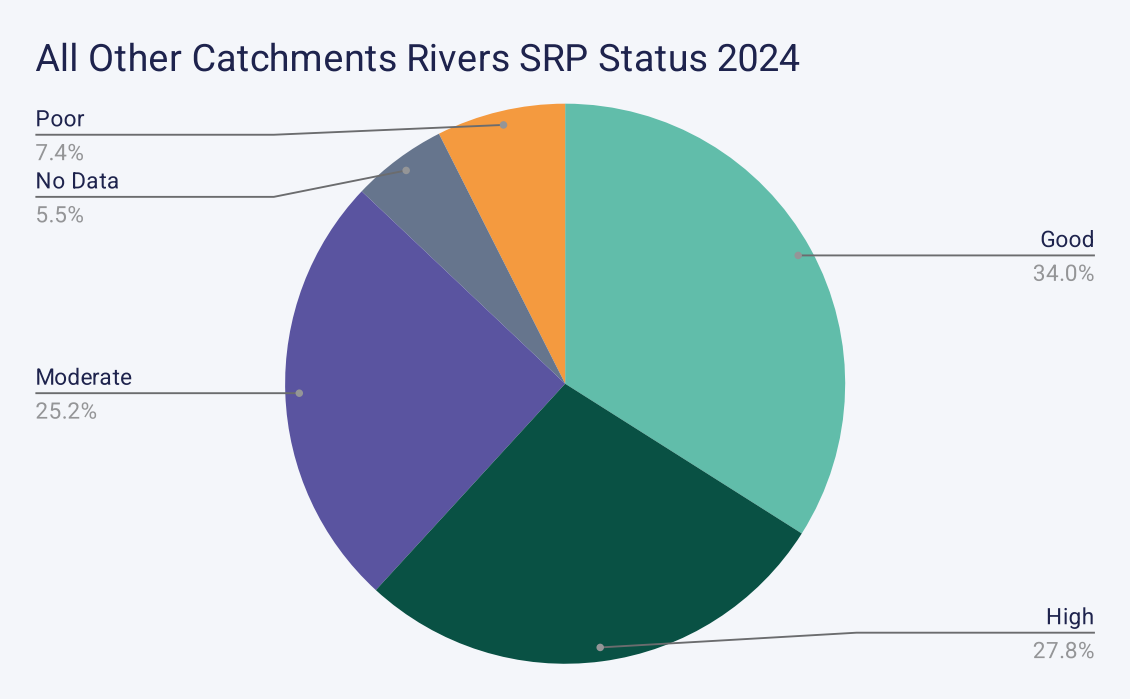
Status (Lough Neagh catchment)	2009	2024	Change
No Data	0.0%	0.0%	0.0%
Bad	4.4%	0.0%	-4.4%
Poor	33.7%	8.5%	-25.2%
Moderate	48.6%	68.1%	+19.5%
Good	12.7%	22.0%	+9.3%
High	0.6%	1.4%	+0.9%

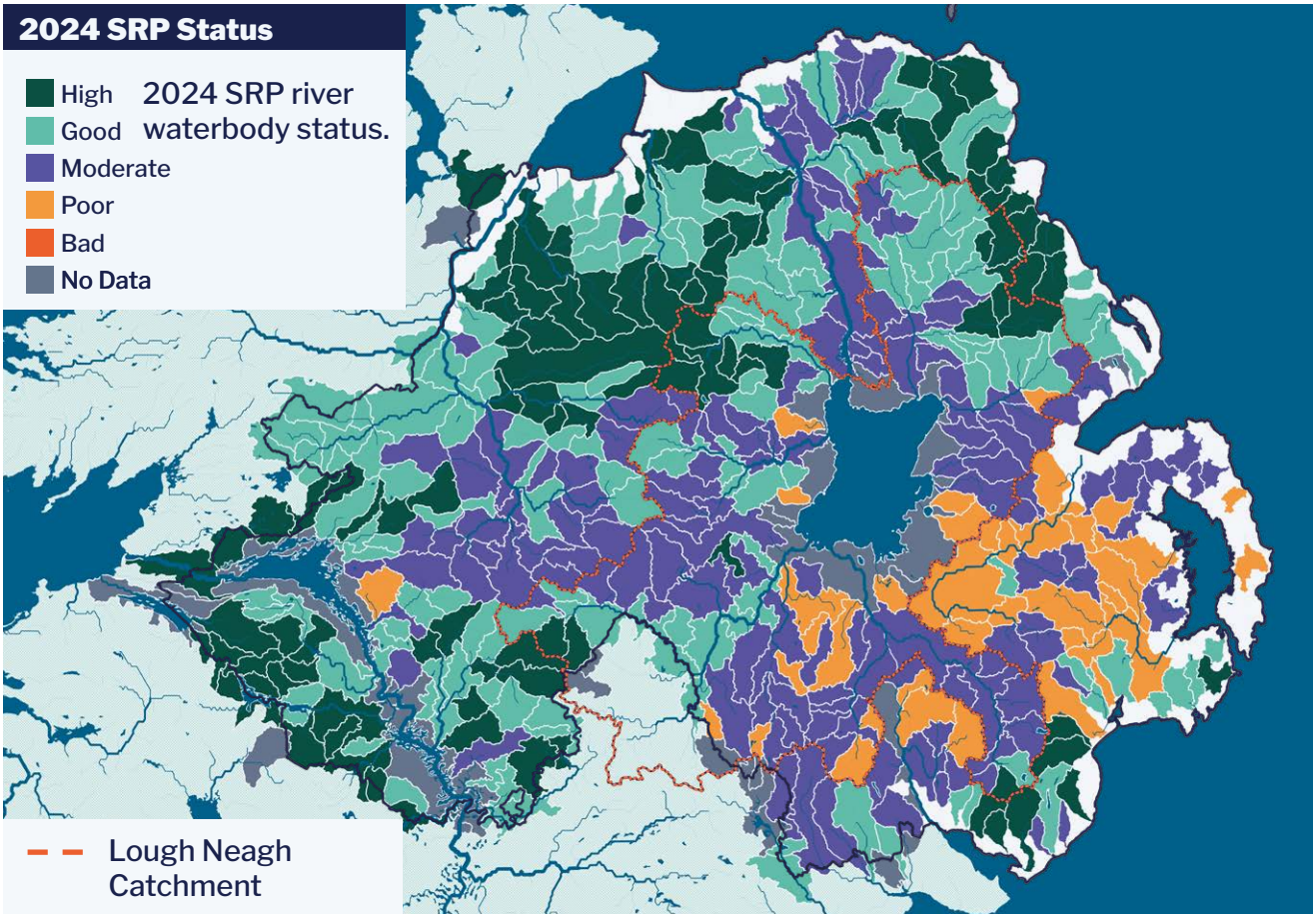
Status (Any other catchment)	2009	2024	Change
No Data	0.0%	0.3%	+0.3%
Bad	3.0%	1.0%	-2.1%
Poor	21.8%	10.7%	-11.1%
Moderate	51.8%	56.3%	+4.5%
Good	23.1%	31.7%	+8.6%
High	0.3%	0.0%	-0.3%

WFD Soluble Reactive Phosphate (SRP) Focus:

More rivers (waterbodies) within the Lough Neagh catchment have ecological failures due to high levels of SRP (NIEA 2025b). 54% of failures were attributed to SRP within the catchment, compared to 33% in other areas. Just 12% of rivers had a high (positive) status for SRP inside the Lough Neagh catchment, with 28% outside (NIEA 2024). Significantly more rivers were rated as having a moderate SRP status within the Lough Neagh catchment (44%) while only a quarter of rivers outside are classed as moderate.

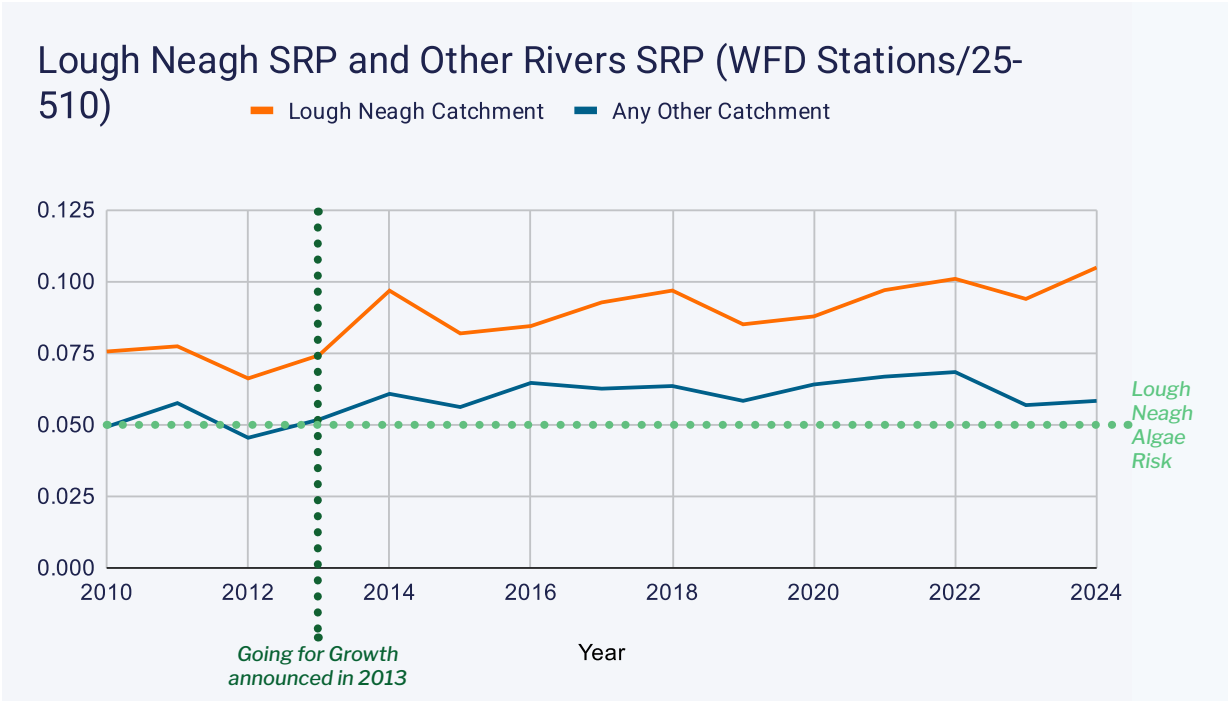






Long-term surveillance station data: In 2024, average annual SRP levels were 44% higher within the Neagh catchment than outside. The second highest divergence was in 2022 at 37% more, compared to 31% in 2012, the year before Going for Growth was announced.

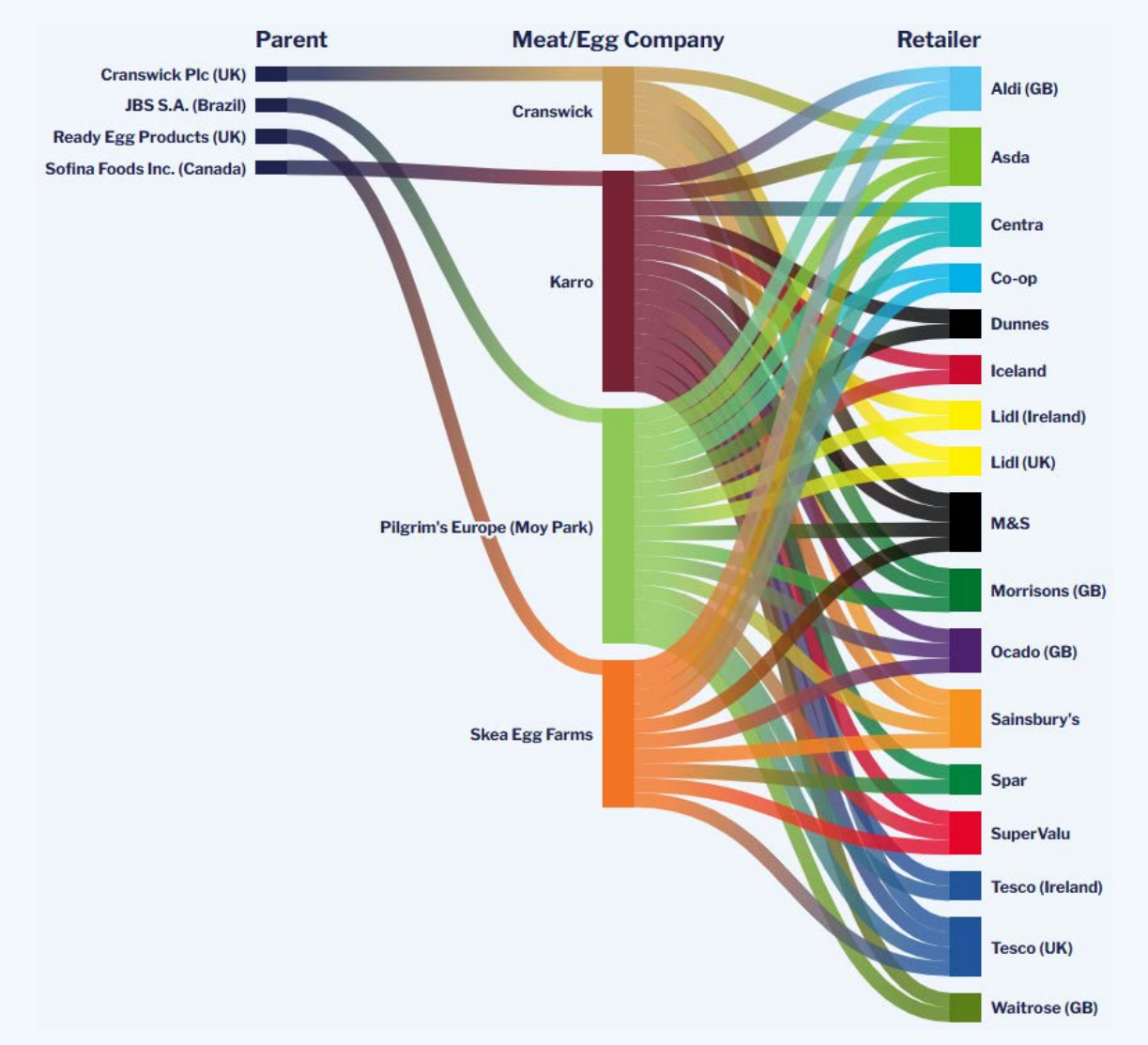
Ecological Failures	L. Neagh Catchment	All Other Catchments	NI Total
SRP included	54%	33%	39%
Not SRP	46%	67%	61%



Mapping Supply Chains:

This section identifies the most prominent companies in the poultry (including eggs) and pig sectors, who sub-contract farmers and supply supermarkets. In the pig and poultry meat sectors, these companies are known as processors: and are Pilgrim's Europe (Moy Park) in poultry and Karro and Cranswick for pigs. Egg packing companies act similarly, and Ready Egg (owner of Skea Eggs) is the largest egg packing and processing company in Northern Ireland.

Processors organise livestock supply chains and hold contracts with supermarkets. These companies own or operate key sites of material transformation and value creation, such as slaughterhouses and sometimes feed mills, in a structure of vertical integration (or working towards this structure). Poultry farms tend to be contracted to one processor, while the structure of pig supply chains is less clear and consistent. Across the UK, the poultry industry is more vertically integrated than the pig industry, which is working towards the same structure.



This chart shows which retailers have been supplied by Cranswick, Pilgrim's Europe (Moy Park) and Skea Egg Farms - they may not currently supply these retailers. Karro and Finnebrogue are both owned by Sofina, and Karro is a main supplier to Finnebrogue. Finnebrogue have supplied Ocado, Tesco Ireland and Waitrose. Skea Egg Farms have likely supplied Centra and Supervalu as they supply the parent company Musgrave Group.

Pilgrim's Europe, Cranswick, Karro and Ready Egg (Skea Eggs) were all approached for comment. Their responses can be read at the start of company section respectively. This report does not allege any wrongdoing by the companies mentioned in this report.

We searched open source evidence* and submitted Environmental Information Requests to compile spatial and supply information on the main processors, such as retailers supplied, slaughterhouse ownership and third party farms linked to the processors. A 'link' in this section refers to a previous or current relationship between a planning application or intensive permit site and a dominant livestock processor. This relationship infers but may not prove that a farm currently supplies the processor.

We approached all of the retailers connected in this report to Cranswick, Karro, Pilgrim's Europe and Ready Egg for comment. Most retailers** did not respond to our requests. We asked each retailer how they would address campaigners' concerns of factory farming negatively impacting Lough Neagh and other Northern Irish waterbodies.

M&S responded to concerns on Lough Neagh, but declined to comment further on points from this report without reviewing the report in full.

> "M&S recognises the important role that water plays for communities and we take pollution extremely seriously, engaging in several collective action projects. We have close working relationships with all our suppliers and farmers in Northern Ireland, all of whom are third-party farm assured and audited annually, and all larger farms must have IPPC permits."

A spokesperson for SPAR confirmed that "Skea Eggs supply a very small number of [SPAR] stores in their local area with Skea Branded Eggs". They confirmed that Pilgrim's Europe and Karro supply SPAR from their Northern Irish operations, and that Cranswick and Ready Egg do not supply SPAR. On Lough Neagh concerns, the spokesperson said:

> "SPAR NI is committed to responsible sourcing and will continue to engage with suppliers and relevant stakeholders on environmental standards and sustainable farming practices. We expect our suppliers to comply with all relevant environmental legislation, regulations and assurance standards. Where concerns are raised, we support greater transparency and evidence-based action to address environmental impacts and improve sustainability across the sector."

Waitrose responded, stating that "no pork and a minimal amount of eggs" is sourced from Northern Ireland, and that:

> "We take our environmental responsibilities very seriously. Our poultry supplier in Northern Ireland has highly regulated operations that are transparent and rapidly transitioning towards fully circular, off-land litter management, delivering environmental protection, renewable energy and circular economy benefits."

** Supply chain maps are based on the best open-source evidence available to us and as such may vary from the current practice of the company mapped.*
***Musgrave Group (Centra, Supervalu), Dunnes, Asda, Iceland, Sainsbury's, Tesco, Tesco Ireland, Co-op, Aldi GB, Morrisons, Ocado, Lidl UK and Lidl Ireland did not respond to our requests for comment.*

Mapping Pilgrim's Europe (Moy Park):

> **"Of the 2,500 farms in the UK that produce poultry meat, 800 are contracted to the Moy Park supply chain. Northern Ireland accounts for more than a quarter of the 19 million birds that are slaughtered in the UK each week—in other words, 5 million birds a week."** Ian Paisley MP (Hansard 2017)

Pilgrim's Europe (Moy Park) is the dominant poultry company in Northern Ireland, owning two slaughterhouses and one feed mill, in Ballymena, Dungannon and Randalstown respectively (Food Standards Agency 2024; DAERA 2024b). A remaining portion of feed is sourced from Thompsons in Belfast on a long term basis (John Thompson and Sons Limited 2012; Faulkner 2014).

Pilgrim's Europe (Moy Park) is owned by JBS (JBS 2026), this Brazilian company is the largest meat company in the world, and also owns Pilgrim's GB pig operations. According to Sustain, Pilgrim's Europe (Moy Park) holds an estimated 35 million chickens in the UK at any one time.

Pilgrim's Europe's (Moy Park) UK operations have supplied Morrisons*, Asda, Sainsbury's, Tesco, M&S, Aldi*, Ocado*, Iceland, Co-op, Lidl UK and Waitrose* (Moy Park 2015; Hodgson 2020; Ryan 2022; Sustain, Materiality, and Friends of the Earth 2024; Duncan 2024; Sainsbury's 2024; Co-op 2025; Open Supply Hub 2026c, 2026a). Pilgrim's Europe (Moy Park) has also supplied Irish retailers, such as Dunnes Stores, Supervalu, Centra, Lidl Ireland and Tesco Ireland (The Competition Authority 2010; Moy Park 2015; Dunnes Stores 2025; SuperValu 2025; Tesco 2025a; Centra 2026).

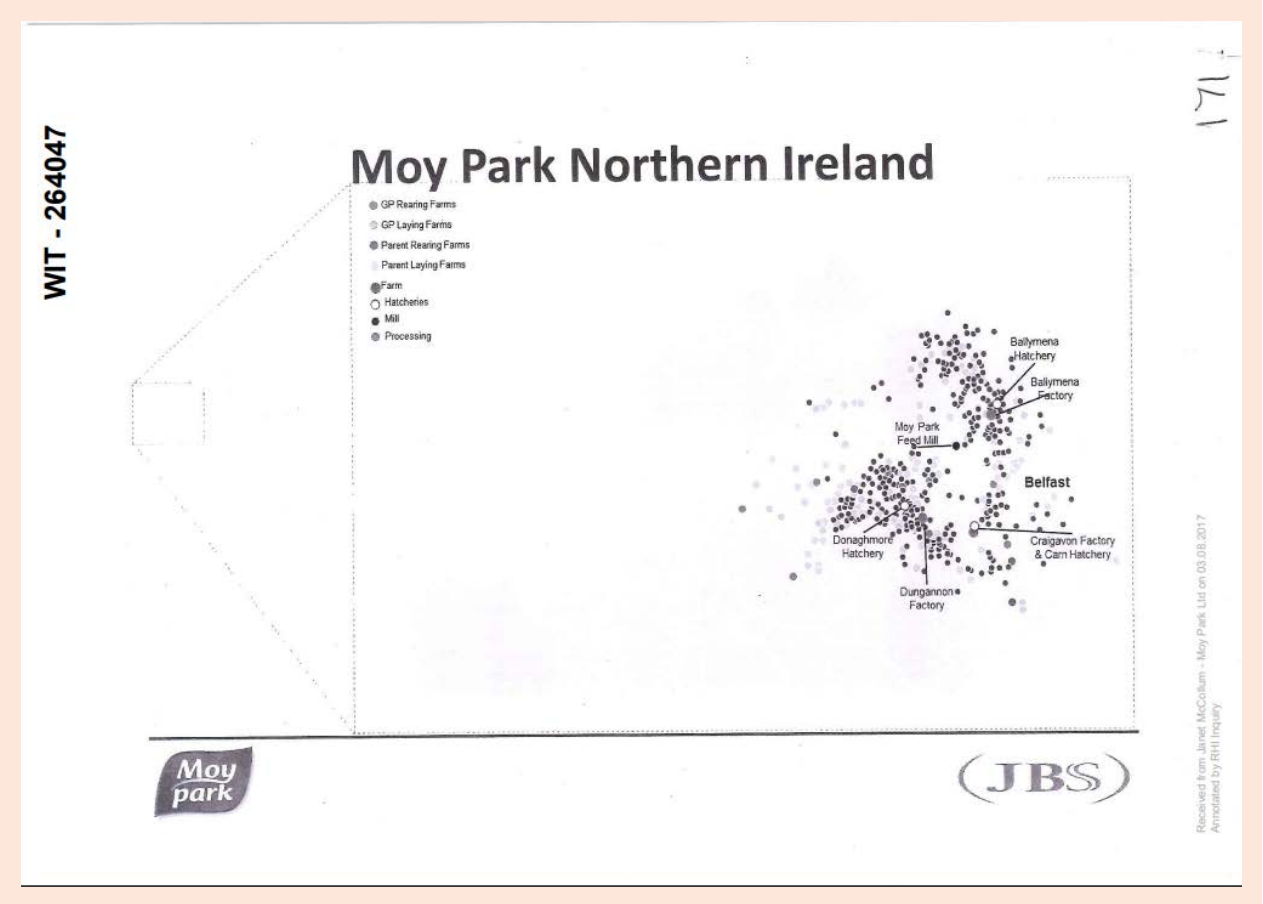
Pilgrim's Europe disputed the findings of this report, stating that it "intentionally relies on out of date information - some over 10+ years old – and incorrect assumptions, and does not accurately represent where we are as a company today". The full comments from Pilgrim's Europe can be found at the end of the Pilgrim's Europe section on pages 102 to 105. Pilgrim's Europe did not specifically identify or give evidence of incorrect assumptions, or address the retailers identified or respond directly to the supply chain maps and/or statistics of planning applications and permits linked to Pilgrim's Europe. JBS and Thompsons did not respond to requests for comment.

Methods:

We used open source investigation to compile links between broiler poultry farms and Pilgrim's Europe (Moy Park), building on methods used previously for Sustain and Friends of the Earth (Sustain, Materiality, and Friends of the Earth 2024). This included searching farm and applicant names in search engines, checking poultry industry news, and referencing the RHI Inquiry archive. We searched planning application pages and documents for the phrases "Moy Park" and "Moypark".

A farm 'linked' to Pilgrim's Europe (Moy Park) means that we judge it as likely to have supplied Pilgrim's Europe (Moy Park) or currently supply Pilgrim's Europe (Moy Park). It is not definitive evidence that the farm currently holds a contract with Pilgrim's Europe (Moy Park). Stocking practices vary: farms do not hold chickens every day of the year and may hold less than the maximum capacity.

In their animal welfare publications, Pilgrim's Europe states that the majority of their farms are within a 30 mile radius of their slaughterhouses (Pilgrim's Europe 2024, 2025). Our Pilgrim's Europe supply chain map follows this trend, with the majority of farms within 30 miles of either Ballymena or Dungannon slaughterhouses. The RHI Inquiry revealed a map of suppliers made by Pilgrim's Europe (Moy Park) prior to 2017 (Janet McCollum 2018). The clustering of farms follows the trend of our supply chain map.



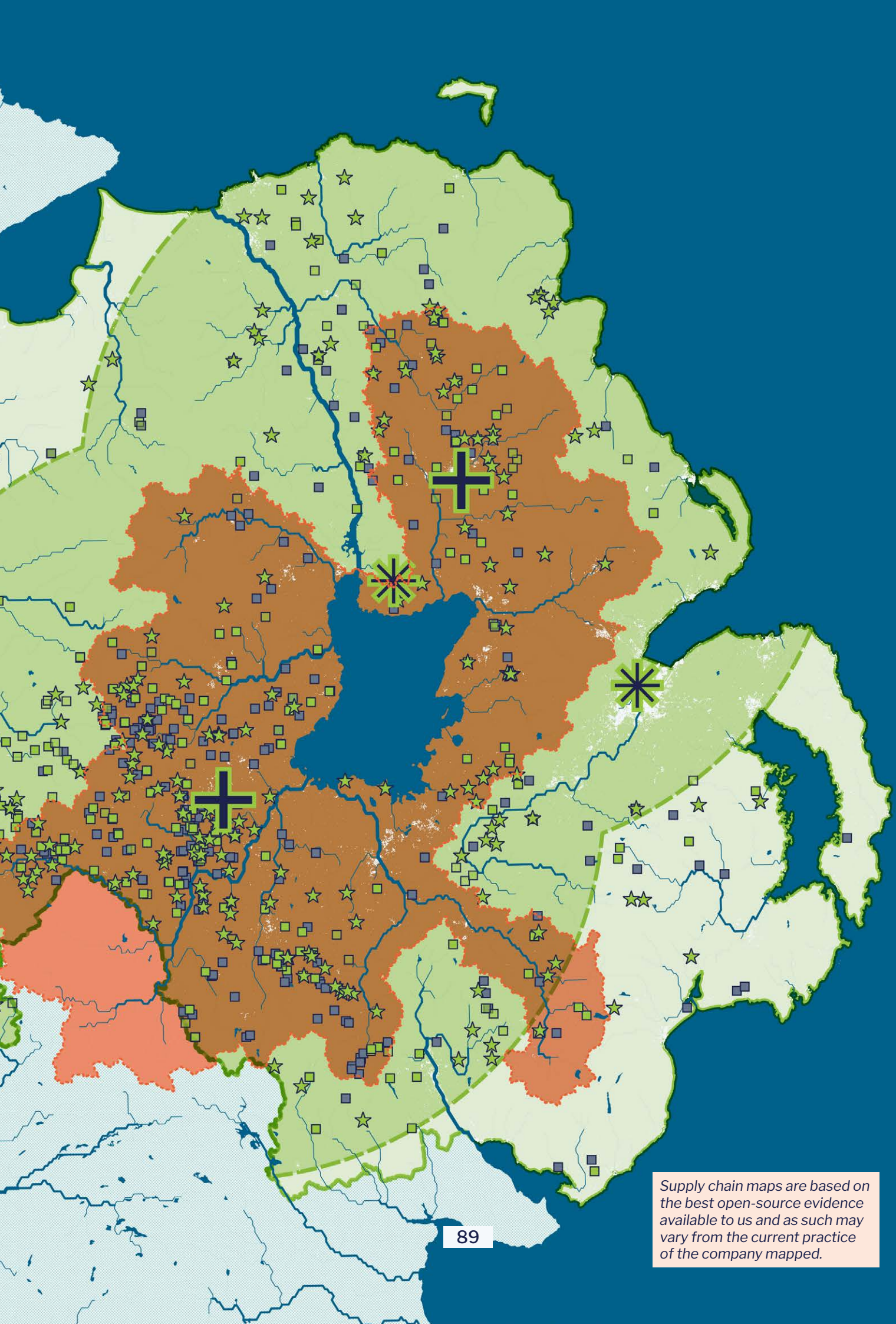
Pilgrim's Europe (Moy Park), Dungannon

*Morrisons, Aldi, and Waitrose only have stores in GB and not NI. Ocado does not operate in NI.

Pilgrim's Europe (Moy Park) Indicative Supply Chain

"Pilgrim's Europe prioritises minimising the time birds spend in transport ... the majority of our farms are located within a 30-mile radius of our primary processing sites". (Pilgrim's Europe 2025)

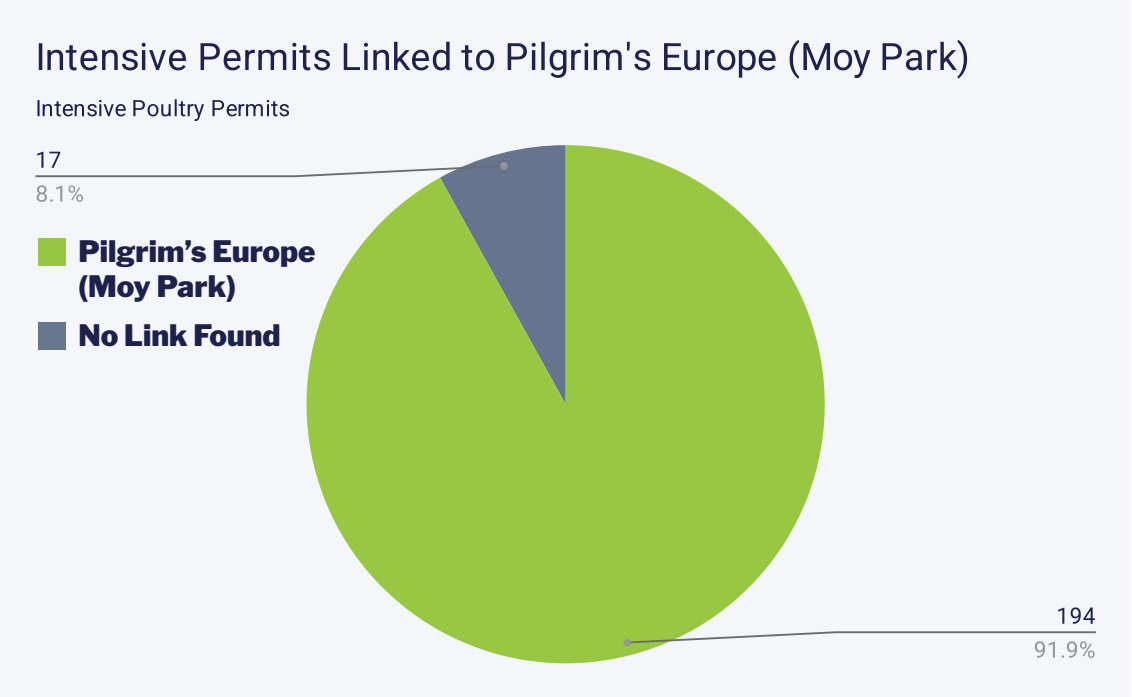
Pilgrim's Europe (Moy Park) operate one feed mill. A remaining portion of feed is sourced from Thompsons in Belfast on a long term basis (John Thompson and Sons Limited 2012; Faulkner 2014)

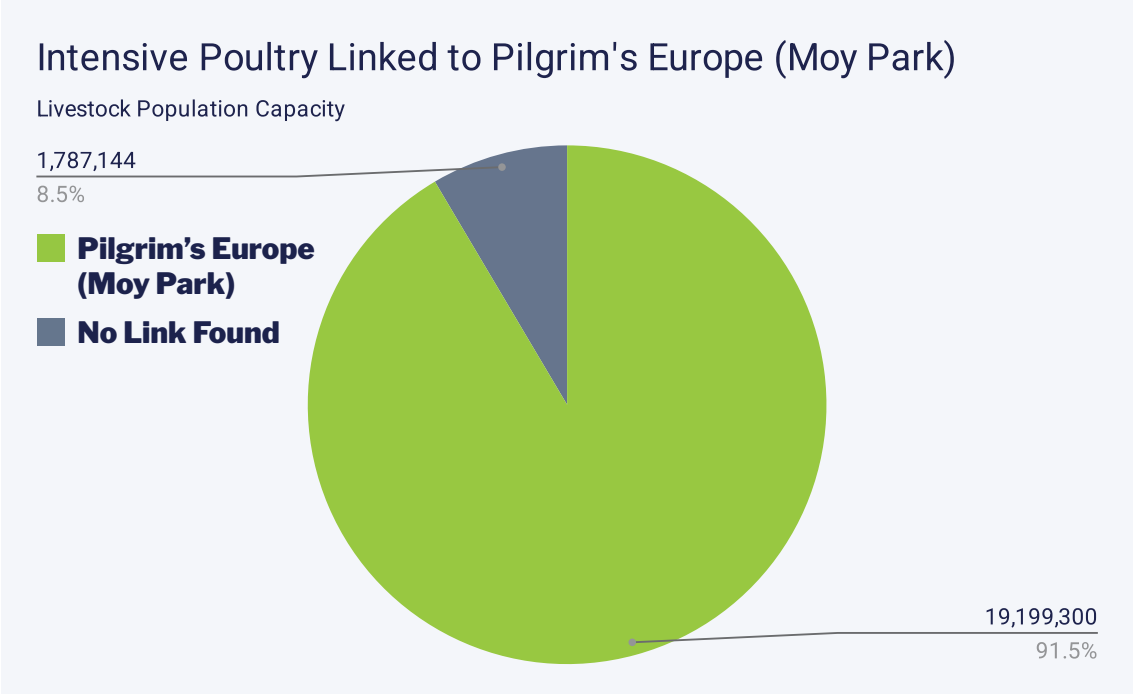


Supply chain maps are based on the best open-source evidence available to us and as such may vary from the current practice of the company mapped.

Intensive Permits:

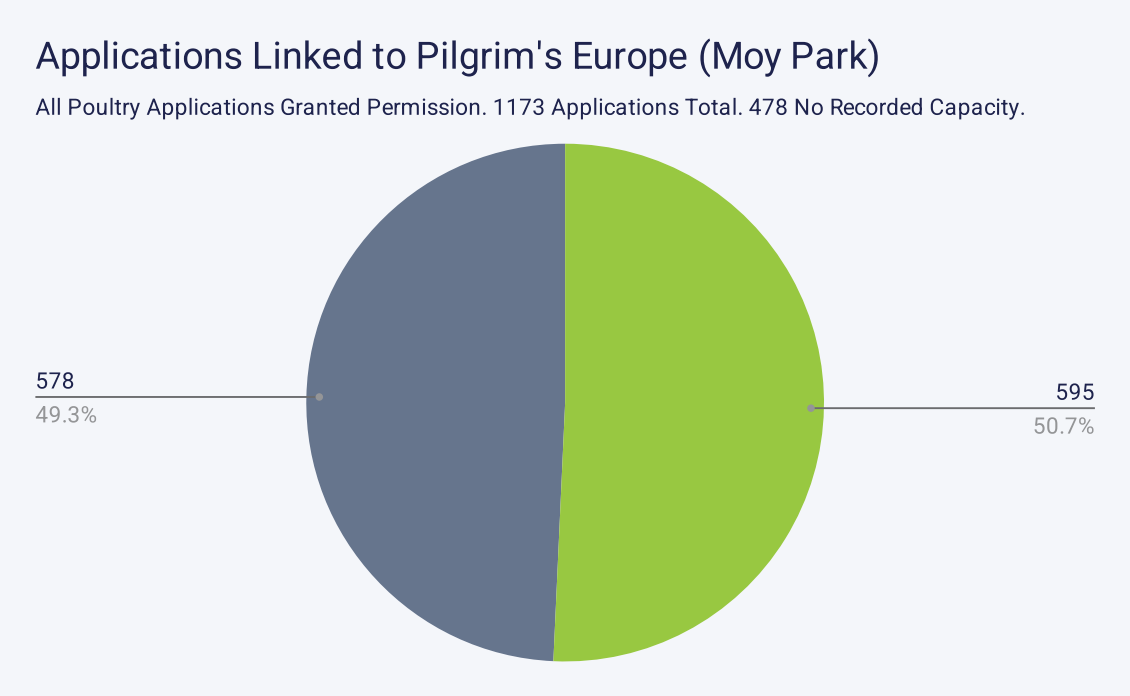
91.9% of intensive poultry permits that we mapped are linked to Pilgrim's Europe (Moy Park), and 91.5% of the permitted poultry population capacity is linked to the company. As the permit list includes egg producers, the share of broiler permits linked to Pilgrim's Europe (Moy Park) is likely higher.



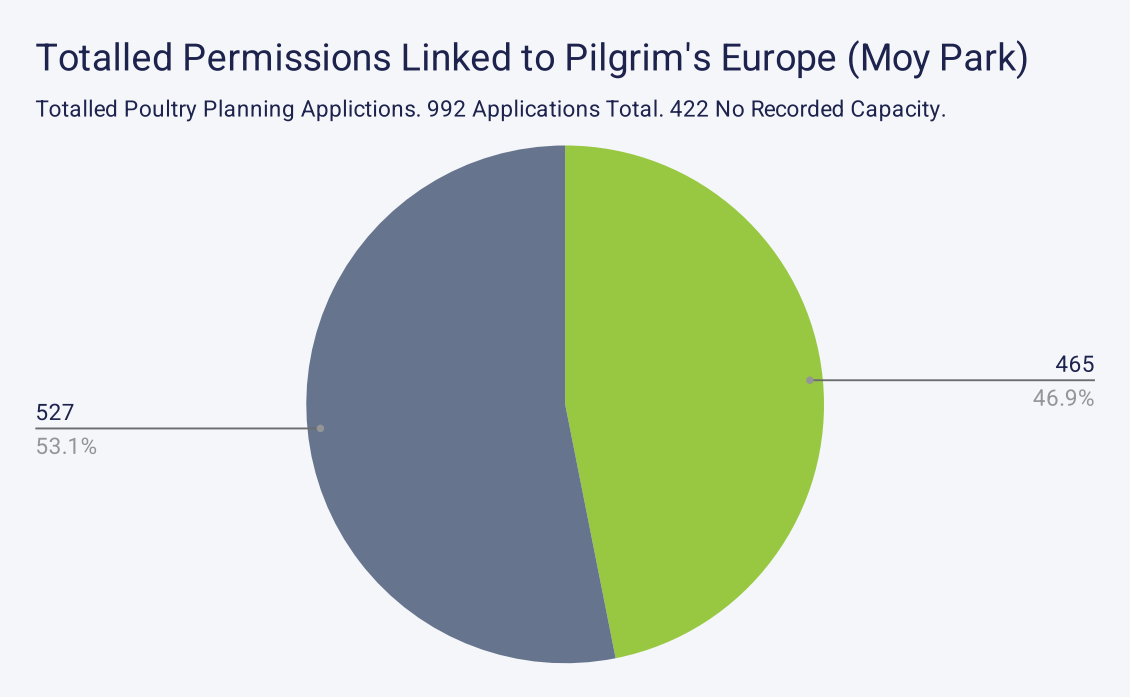


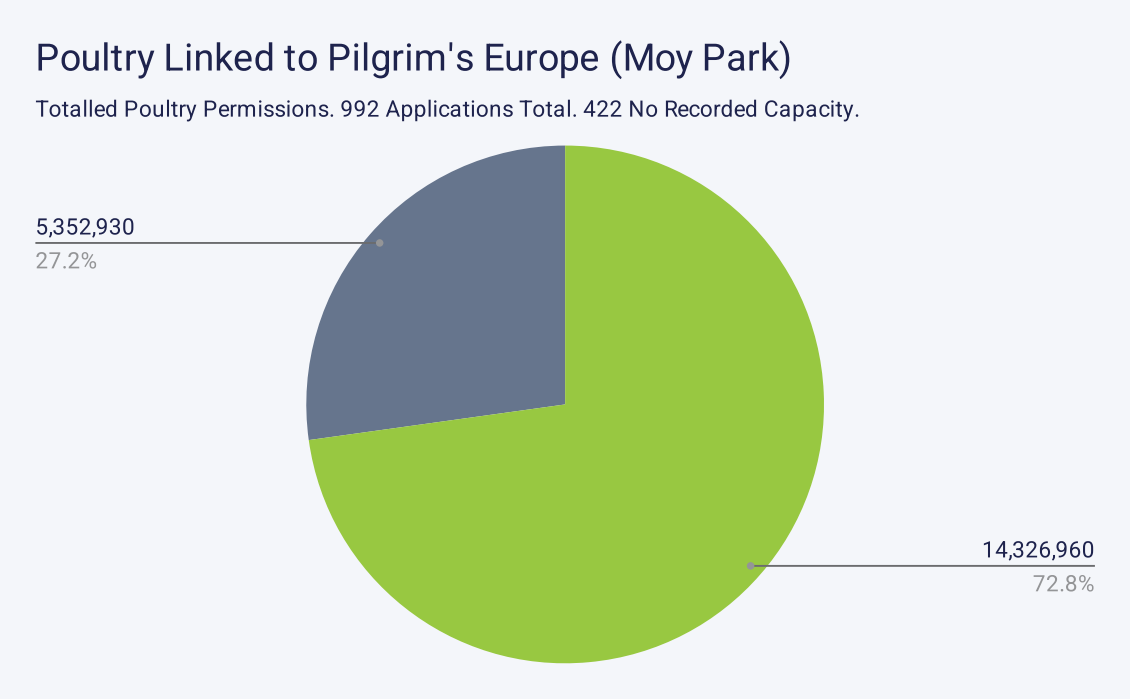
Planning Applications:

51% of all approved poultry planning applications identified in our searches have links to Pilgrim's Europe (Moy Park).



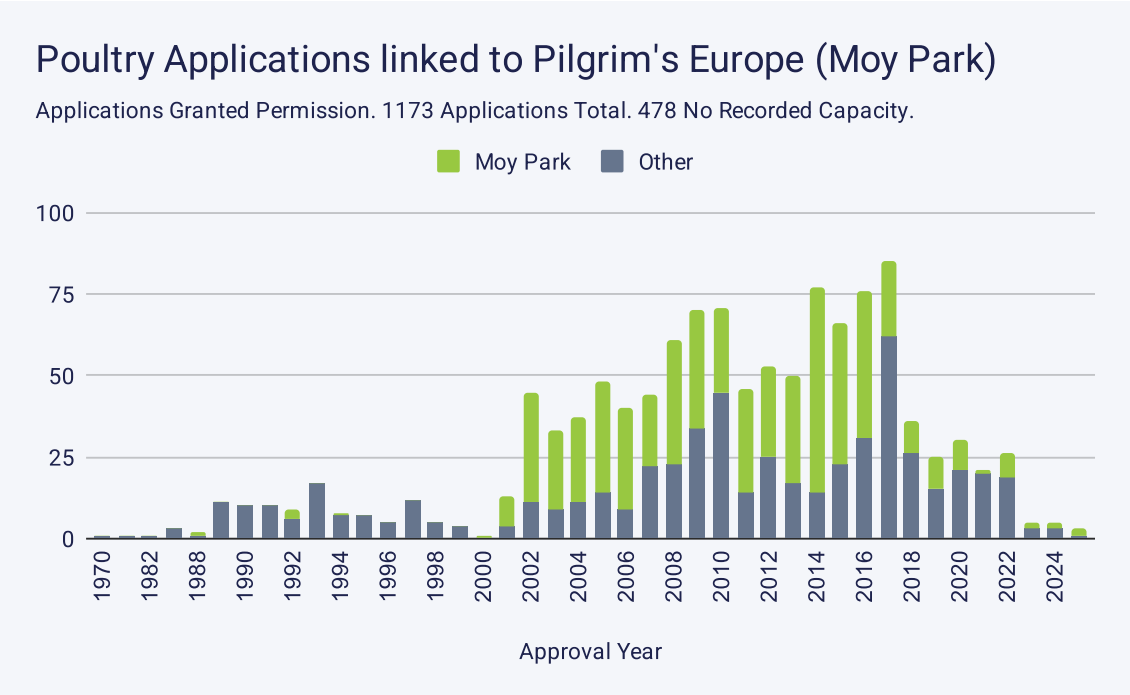
47% of planning applications that we believe are active farms (totalled permissions) are linked to Pilgrim's Europe (Moy Park). **73% of the approved poultry population is linked to Pilgrim's Europe (Moy Park).** 422 of the 992 totalled permissions for poultry had no livestock capacity available (see first pie chart overleaf).



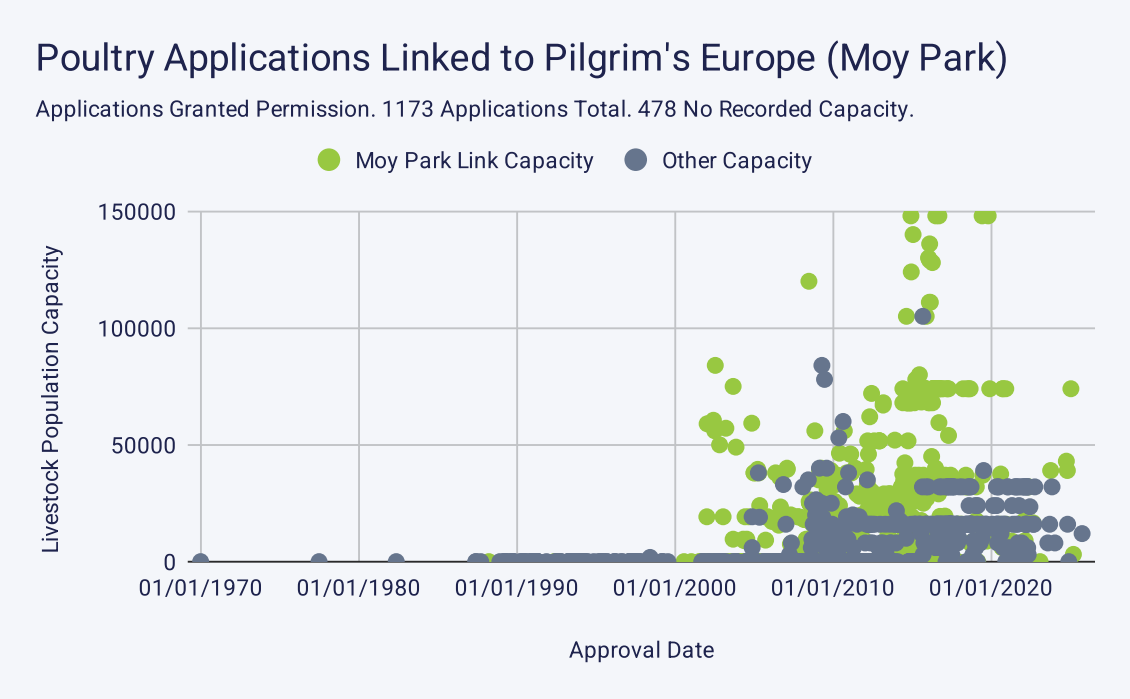


Application Timeline:

Most of these applications were approved between 2002 and 2017, mapping onto a trend of increased poultry application approvals. **72% of the chicken population places approved, across all poultry applications in our study*, were in applications linked to Pilgrim's Europe (Moy Park), no link was found for the remaining 28%. The chart (above right) indicates a trend towards planning applications with larger bird population capacities being linked to Pilgrim's Europe (Moy Park).**



**All poultry applications means all poultry and pig planning applications found via searching the NI Planning Portal and Mid Ulster Planning Portal, timeframe of applications can be seen in the first chart on the following page.*



Plan to Grow:

Alongside the Going for Growth government policy, Pilgrim's Europe (Moy Park) developed its own 'Plan to Grow', seeking 400 new poultry houses (Janet McCollum 2018; Source Material 2018)*. Documents detailing parts of this plan can be found in planning applications and via the RHI Inquiry archive.

Source Material included the company's reply as follows: "At Moy Park we are committed to developing our business sustainably and responsibly, ... we take our role in this very seriously, working collaboratively with our farming partners to ensure best environmental practice."

Pilgrim's Europe (Moy Park) Litter Strategies:

Pilgrim's Europe (Moy Park) drew up a 'Litter Utilisation Strategy', agreed to by NIEA (Henry Marshall Brown 2020), to accommodate the increase in poultry manure. This section reviews documents found with data on their litter strategy, presented from earliest to latest, to track how broiler litter may have been used since 2013. Pilgrim's Europe provided its 2025 litter usage and responded to our findings, which are quoted in detail on pages 102 to 105. As we draw on documents found through the planning portals and PPC register, we may not cover all iterations of the Litter Utilisation Strategy.

Full responses from companies named in these plans and this analysis are cited throughout and summarised on the next page. Pilgrim's Europe emphasised that the following findings do not reflect their current practice and (at the time of writing) no litter has been sent for landspreading in the Republic of Ireland since 2022 (in 2021, 10% was spread in RoI).

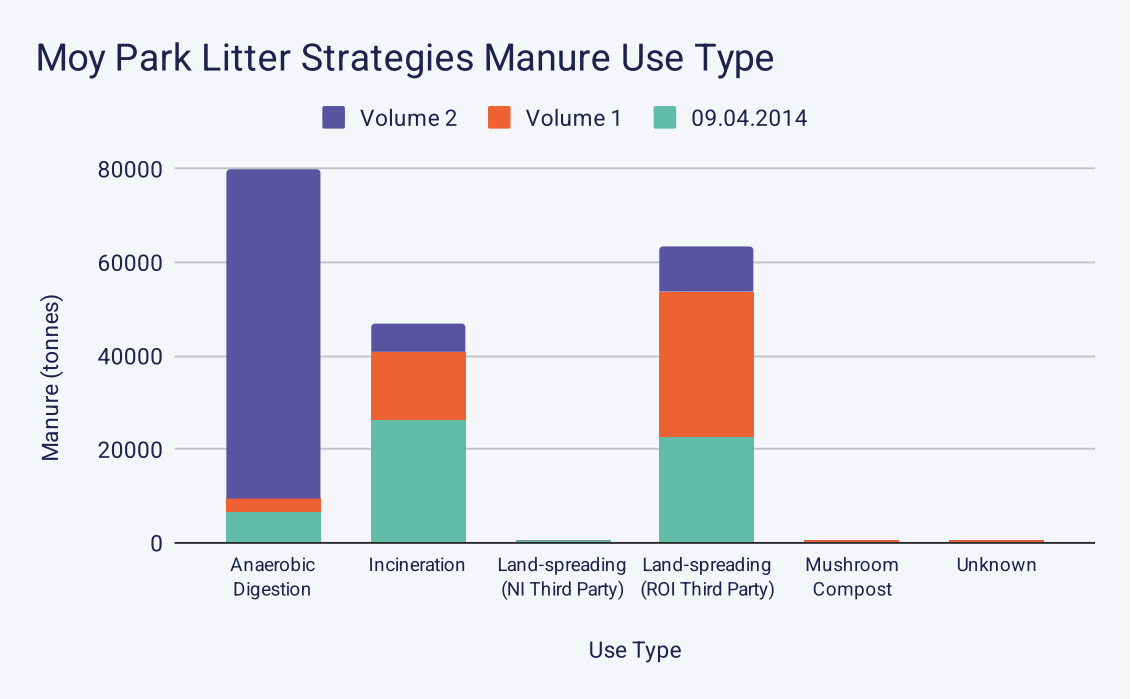
Methods:

We searched planning application documents for "litter" + "utilisation", finding a range of letters and documents confirming the litter strategy and intention to receive manure for most Pilgrim's Europe (Moy Park) applications. Some diverge from the initial litter strategy due to delays in anaerobic digester expansion for example, with litter being used by fertiliser pellet manufacturers instead. Many have generic text citing the Pilgrim's Europe (Moy Park) Litter Utilisation Strategy, making comparison between the litter letters and original strategy difficult. In theory, the NIEA should have a record of any change in strategy and may still be receiving updates.

Meeting minutes sourced from the RHI Inquiry archive reveal that Pilgrim's Europe (Moy Park) and planning consultants met with staff from DAERA and NIEA to discuss broiler expansion progress, and that "regular updates of the Moy Park Litter Utilisation Strategy [were] being provided to the NIEA" (NIEA and Moy Park 2016). We asked DAERA for comment on this, to confirm if these meetings still occur. DAERA declined to comment without reviewing the full report.

In a document dated February 2014, Pilgrim's Europe (Moy Park) set out its contemporary use of poultry litter and plan for facilitating expansion (Mark 2014). Prior to expansion the litter was either land spread in Northern Ireland, land spread in the Republic of Ireland, sent to mushroom composting, used for power generation or in anaerobic digestion. Pilgrim's Europe (Moy Park) had ambitions to export more poultry manure to the Republic of Ireland, noting "a demand for the quality plant nutrient source from litter and large areas of arable land [were] available in the midlands areas north and south of Dublin".

Their expansion plan is described here in two phases, "Phase 1 September 2014 - March 2015" and "Phase 2 April 2015 - July 2015". These may match the two volumes set out in the Litter Utilisation Strategy post-2014 on the next spread.



Litter Responses:

Melton Renewable Energy, the parent company of EPR, responded to points on Pilgrim's Europe as below and confirmed that no by-products are sold to Northern Ireland. Their response to concerns on Lough Neagh water quality and factory farming is on page 52.

> "I can confirm that we have received and continue to receive poultry litter from Pilgrims/Moy Park exported from Northern Ireland. This is processed and used as fuel in our 9MW biomass power station located in Fife, Scotland. We have not processed any of this exported litter at our facility in Thetford, Suffolk since 2020."

Stream BioEnergy responded to our request for comment with a clarification on their outputs, included in the case study on pages 54 and 55. Stream Bioenergy did not comment on any points related to Pilgrim's Europe (Moy Park).

Monaghan Mushrooms responded to our request for comment but did not comment on any points related to Pilgrim's Europe (Moy Park), see their full response on page 56.

A spokesperson for SoilWorx described the company as "a processer of poultry manure, turning raw manure into pasteurised organic fertiliser pellets. We currently export around 60%+ of our products out of the country". Soilworx did not comment on any points related to Pilgrim's Europe (Moy Park).

Sawgrass Substrates was approached for comment as current owners of the compost site formerly operated by Northway mushrooms. Sawgrass declined to comment on points related to Northway or Pilgrim's Europe citing confidentiality and declined further comment, other than their response as quoted on page 56, without reviewing the full report. This report does not allege or infer wrondoing by Sawgrass Substrates.

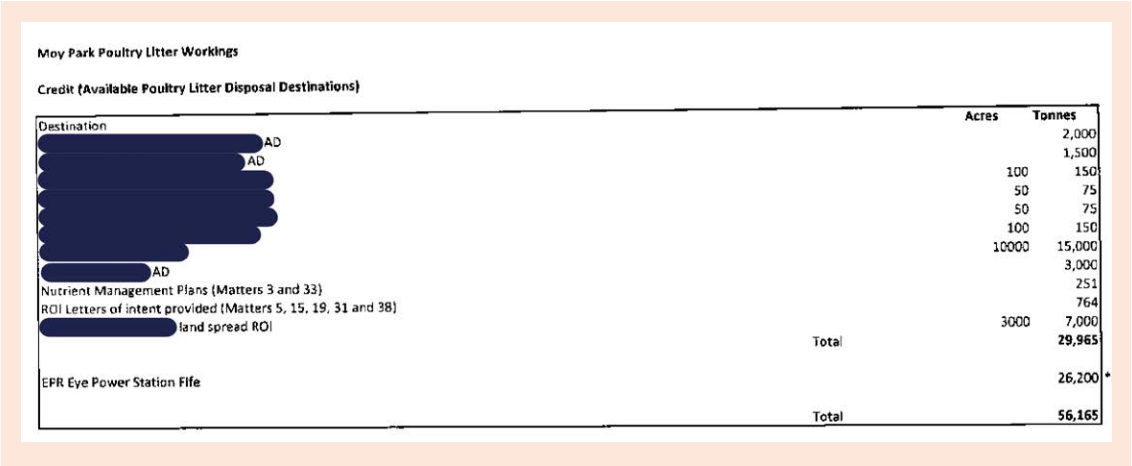
Glenmore and Walsh Mushrooms did not respond to our requests for comment.

A 2014 Pilgrim's Europe (Moy Park) document allocated 47% of manure for incineration at EPR Power Station in Fife, Scotland and 41% for land spread in the Republic of Ireland (Gavin 2014). 12% of manure was allocated for anaerobic digestion, and one AD company would also spread 1% of the manure to their land in Northern Ireland.

Melton Renewable Energy, the owner of EPR, was approached for comment*:

> "We have received and continue to receive poultry litter from Pilgrims/Moy Park exported from Northern Ireland. This is processed and used as fuel in our 9MW biomass power station located in Fife, Scotland. We have not processed any of this exported litter at our facility in Thetford, Suffolk since 2020.

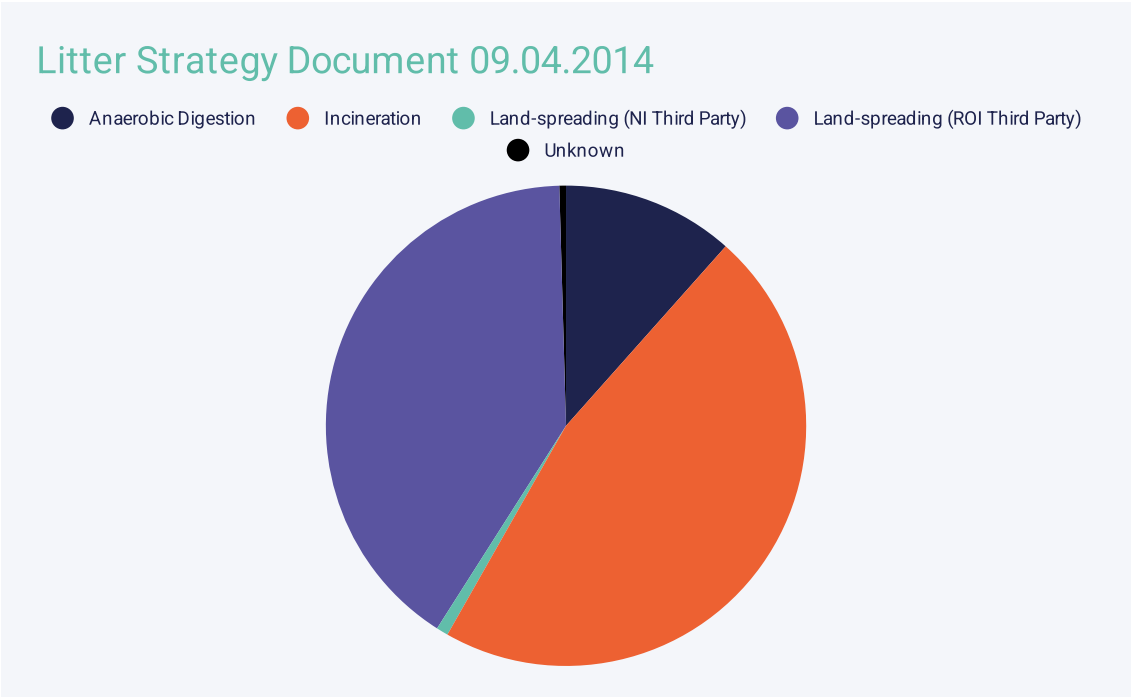
Pilgrim's Europe (Moy Park) litter utilisation documents from 2014, uploaded to the DAERA Pollution and Prevention Control (PPC) register and that most likely detail farm locations for manure spreading, include Counties Wicklow, Carlow, Kildare, Offaly, Wexford, Laois, and Cork (Wilson 2014a, 2014b).



Moy Park Poultry Litter Workings

Credit (Available Poultry Litter Disposal Destinations)

Destination		Acres	Tonnes	
[redacted] AD			2,000	
[redacted] AD			1,500	
[redacted]		100	150	
[redacted]		50	75	
[redacted]		50	75	
[redacted]		100	150	
[redacted]		10000	15,000	
[redacted] AD			3,000	
Nutrient Management Plans (Matters 3 and 33)			251	
ROI Letters of intent provided (Matters 5, 15, 19, 31 and 38)			764	
[redacted] land spread ROI		3000	7,000	
	Total		**29,965**	
EPR Eye Power Station Fife			26,200	*
	Total		**56,165**	



**Further comment including Melton's response to Lough Neagh can be found on pages 52 and 95.*

In a letter dated November 2015 (Clyde Shanks 2016), volume one of the Litter Utilisation Strategy consists of 63% land spread in the Republic of Ireland with 29% incinerated in Fife. Volume two switches to 82% anaerobic digestion (predominantly to ADs marked Donegal and Antrim), 11% spread in Ireland and 7% for incineration transported to a second EPR site Thetford, England instead of Fife. These versions do not contain land spreading in Northern Ireland, however it is not clear if previous practices continued.

Anaerobic digestion was introduced as the Fife incinerator reached capacity, as noted by Council planners in December 2015 (Marrion 2015). These facilities were predominantly the Connective Energy (Glenmore) AD Plant in County Donegal (ROI) and the Stream Bioenergy Tully site in County Antrim, receiving a (planned) 25,000 and 40,000 tonnes of poultry litter respectively (NIEA and Moy Park 2016). An industry spreadsheet notes that Glenmore Estates deliver 2000 tonnes of Pilgrim's Europe (Moy Park) poultry litter to a third party AD in County Down (ADBA 2023). Glenmore did not respond to our requests for comment. Stream Bioenergy did not comment on any points related to Pilgrim's Europe (Moy Park)*.

Moy park

12th November 2015

Ref: Moy Park Litter Utilisation Strategy.

Volume 1 of the Moy Park Strategic litter plan

Destination	Acres	Tonnes
EPR Power Station Westfield Fife		14,560
[redacted]	2600	20,000
[redacted]– land spread ROI	3000	7,000
[redacted] AD		3,000
[redacted] AD		2,000
[redacted] AD		1,500
Nutrient Management Plans (Matters 3, 32 and 33)		529.9
ROI Letters of intent provided (Matters 5, 15, 19, 21, 31 and 38)		2,022.5
Existing Mushroom Composting (Matter 92)		468.0
Total Tonnage		**51,080.48**

Volume 2 of the Moy Park Strategic litter plan

Destination	Acres	Tonnes
[redacted]– land spread ROI	1000	3,550
[redacted] Land Spread ROI	6000	6,000
EPR Power Station, Thetford, Norfolk, England		6,000
[redacted] AD Plant		5,000
[redacted] AD Plant		2,000
*AD Plant 1 (Co. Donegal)		25,000
*AD Plant 2 (Co. Antrim)		35,000
Total Tonnage		**82,550**

* - NIEA are aware of AD Plant 1 & 2, due to commercial sensitivity these plants have been disclosed for now.

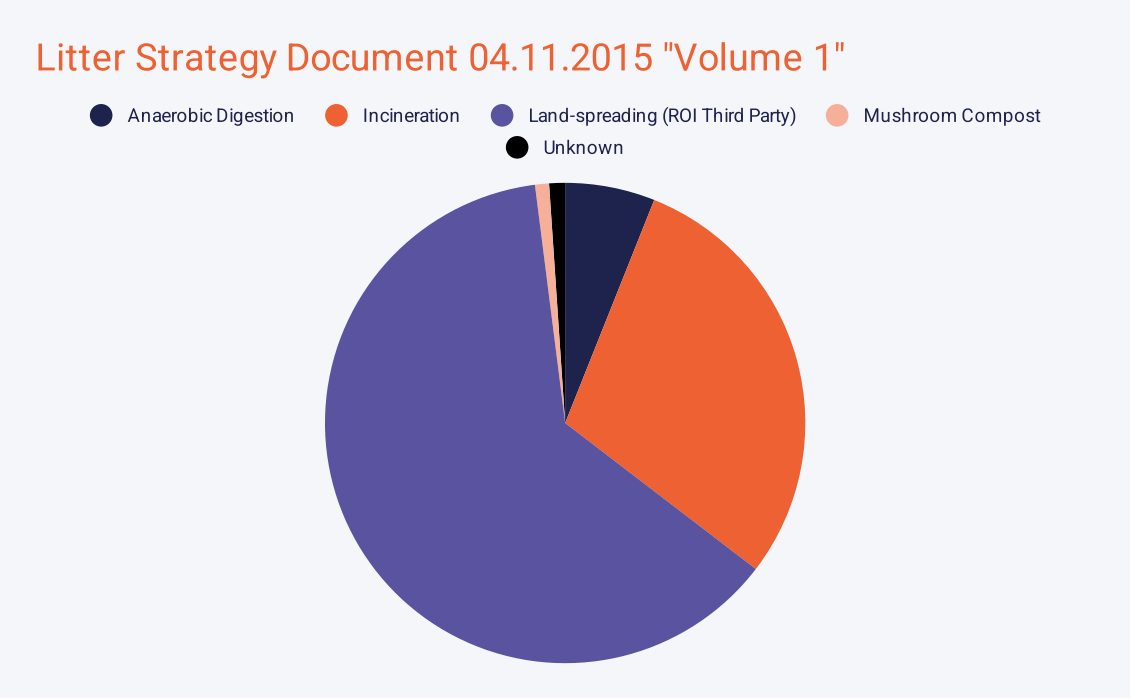
Overall Litter Volume account

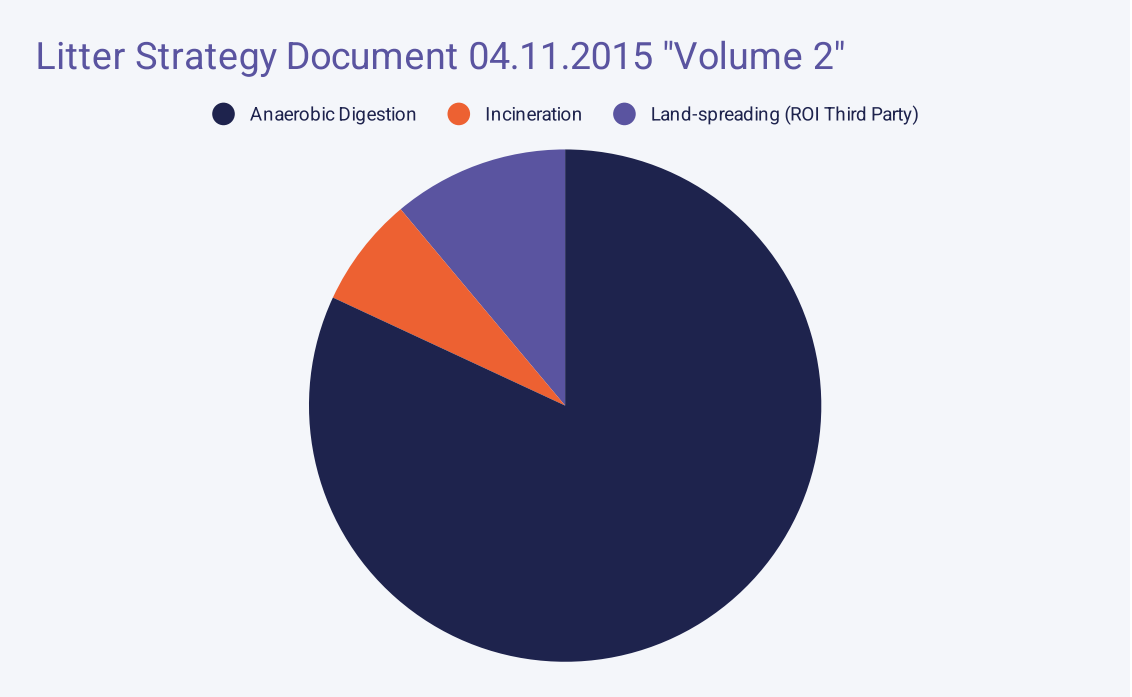
Litter Credit Available Volume 1	**51,080.48**
Litter Credit Available Volume 2	**82,550**
Total Litter Credit Available (Tonnes)	**133,630.48**
Proposed Bird Numbers	**6,483,090**
Proposed Litter Produced	**52,402.30**
Current Litter Balance (Tonnes)	**81,228.18**

Moy Park have employed a litter planner to manage and co-ordinate all of Moy Park's current and future proposed litter supply, which will avail of existing and newly secured contracts for litter utilisation. This will include Mushroom composting in both NI and ROI, Incineration through CHP plants both existing (EPR Fife & Thetford) and any possible future developments, Small and Large AD plants in NI and ROI and then land spreading in NI and ROI.

**Further comments from Stream Bioenergy can be found in the Tully AD case study on pages 54 and 55.*

Minutes from a Pilgrim's Europe (Moy Park), DAERA and NIEA meeting note that "Farms west of Dungannon will export litter to the Donegal AD plant, farms in the north to the Tully Quarry AD plant, whilst others will go to mushroom composters" (NIEA and Moy Park 2016). As noted earlier, Pilgrim's Europe (Moy Park) has agreed to send an additional 100,000 tonnes of poultry litter to Tully from 2026, anticipating an extension of the Tully AD site.

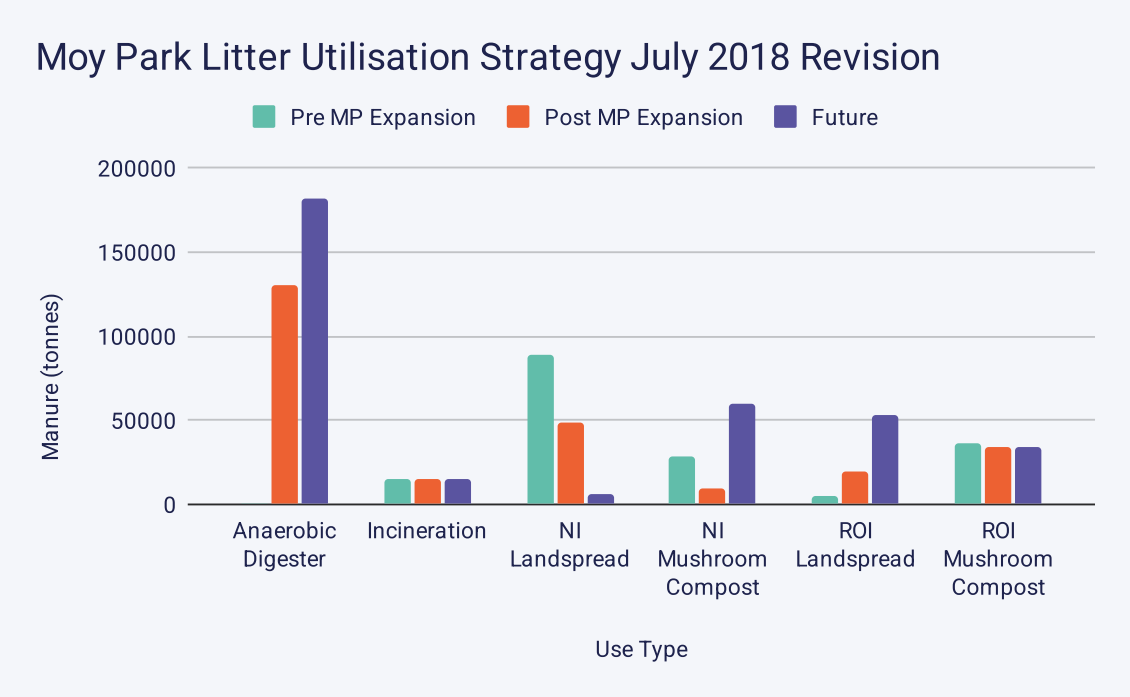




A 2018 document uploaded to the DAERA PPC register displays the developments in strategy, with "Litter utilisation tonnage pre MP Expansion", "Additional Litter utilisation tonnage post MP Expansion", and "Future Litter utilisation tonnage". While manure use types were visible, the names of locations were anonymised in this document.

This outlined the new major introduction of anaerobic digestion post expansion, accounting for just over half of all litter use, set to increase in future plans from 130,000 tonnes to 181,500 tonnes. Land spreading in Northern Ireland was significantly reduced, from 89,000 tonnes pre-expansion to 5,870 tonnes in their future plans. However, land spreading in the Republic of Ireland increased from 5,500 tonnes to 53,250 tonnes. Future plans had a large increase in litter taken by mushroom composters, from 64,420 tonnes pre-expansion to 93,100 tonnes.

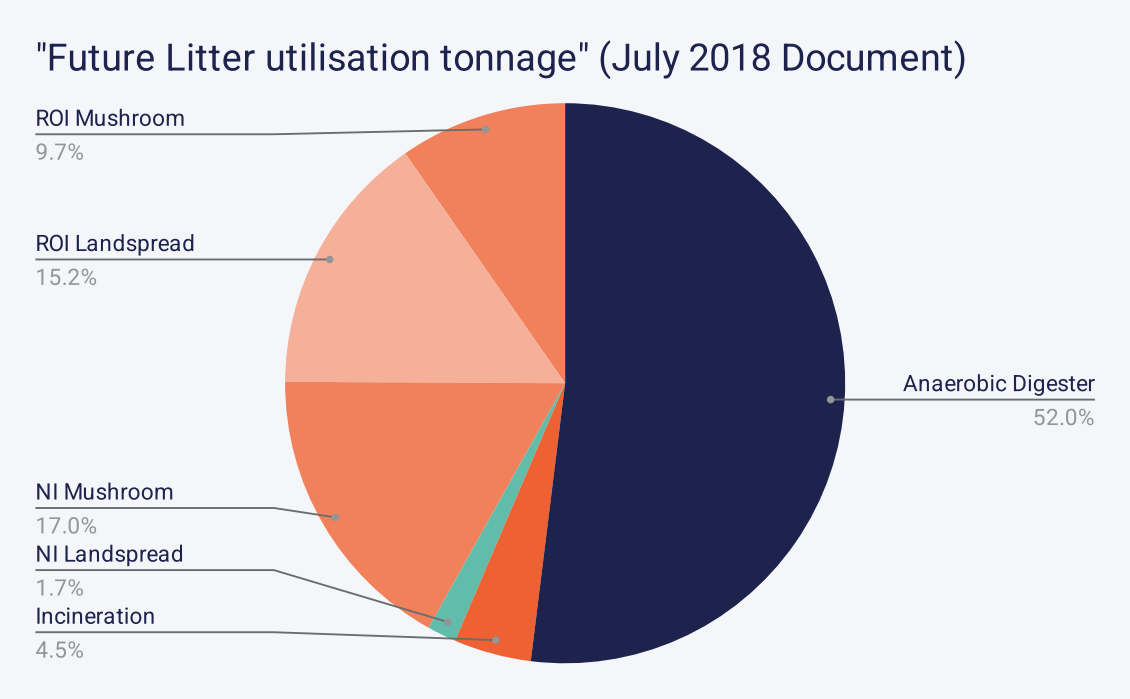
Poultry Farms	Manure Produced (tonnes)
Pre-expansion	174,520
Post-expansion	256,800
Future	349,320



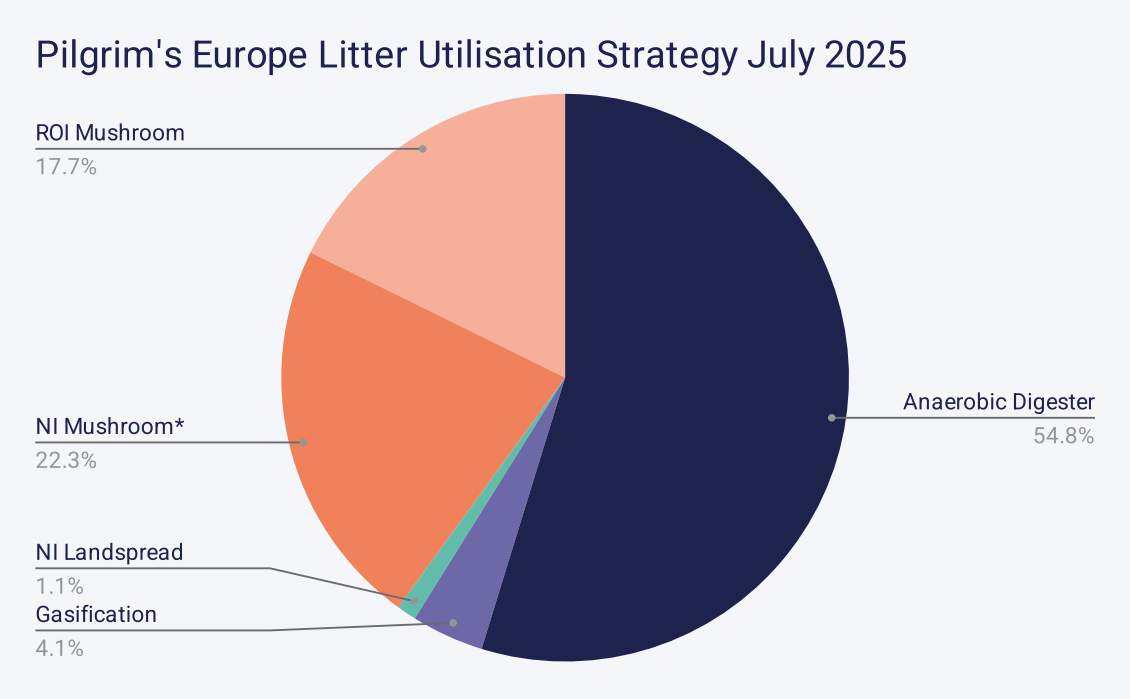
Documents uploaded to the DAERA PPC portal confirm mushroom company relationships to Pilgrim's Europe (Moy Park). In August 2023, Monaghan Mushrooms agreed to receive 13 loads of litter per week, received by their Carbury site in County Kildare (Cassidy 2023). An undated Northway letter confirms that Pilgrim's Europe (Moy Park) is the primary supplier to their site in Ballygawley, County Tyrone, with the site taking 260-300 tonnes per week* (Williamson, n.d.). Soilworx, a fertiliser pellet manufacturer in Mayobridge, County Down, described receiving 10 loads of litter per week from Pilgrim's Europe (Moy Park) in 2024 (Byrne 2024). This was set to increase for part of 2024 and 2025 to 18 loads.

Monaghan mushrooms declined to comment on specific environmental questions. Sawgrass Substrates, now owners of the Northway composting site, declined to comment on Northway or Pilgrim's Europe citing confidentiality. A spokesperson for SoilWorx described the company as "a processer of turning raw manure into pasteurised organic fertiliser pellets. We currently export around 60%+ of our products out of the country".

**It is not clear if this is the Northway site total or the total Pilgrim's Europe (Moy Park) litter supplied.*



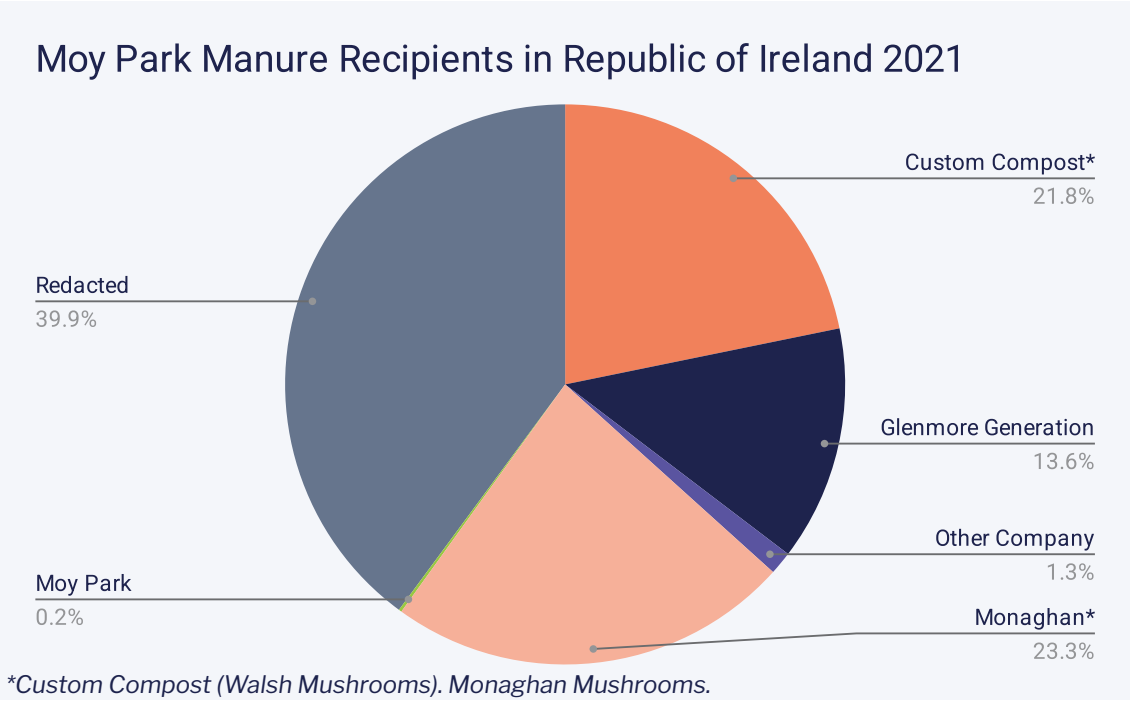
Litter Utilisation Strategy July 2025:



The most recent iteration of Pilgrim's Europe's Litter Utilisation Strategy we found was for July 2025, uploaded to the DAERA PPC register (Wilson 2025). **It outlined plans to send the majority, 55%, of Pilgrim's Europe litter to anaerobic digestion. 40% would be received by mushroom composters or pelletising, of which 56% is within Northern Ireland and 44% in the Republic of Ireland.** 4% for use in gasification and 1% for land spreading within Northern Ireland. The total capacity within the July 2025 strategy is 189,020 tonnes, with 103,500 allocated to anaerobic digestion and 75,600 to mushroom composting or pelletising. The 2025 document includes unspecified Future Potential Utilisation Outlets, which could receive 235,000 tonnes of manure. It is not clear if this is an outright increase in tonnage, or a redirection from current usage. However, as "Pilgrims

Europe's current litter production tonnage is approx. 121,000t per annum", **this could represent a 94% increase in litter production.** We asked Pilgrim's Europe for clarification on this point, but Pilgrim's Europe did not address the statistics directly.

Returning to the documents detailing 2021 manure exports to Ireland, Pilgrim's Europe (Moy Park) sent 24% to County Dublin, 23% to Kildare, 22% to Wexford, 17% to Donegal, and 11% was redacted. Mushroom composters or producers received 43%, 40% was redacted, and 14% sent for anaerobic digestion. Glenmore, Walsh Mushrooms and Cabragh Mushroom Compost did not respond to our requests for comment. Monaghan Mushrooms declined to comment on specific environmental questions. A spokesperson for Pilgrim's Europe said no litter has been spread in the Republic since 2022, please see pages 102 to 105 for the more detailed response.



**Custom Compost (Walsh Mushrooms). Monaghan Mushrooms.*

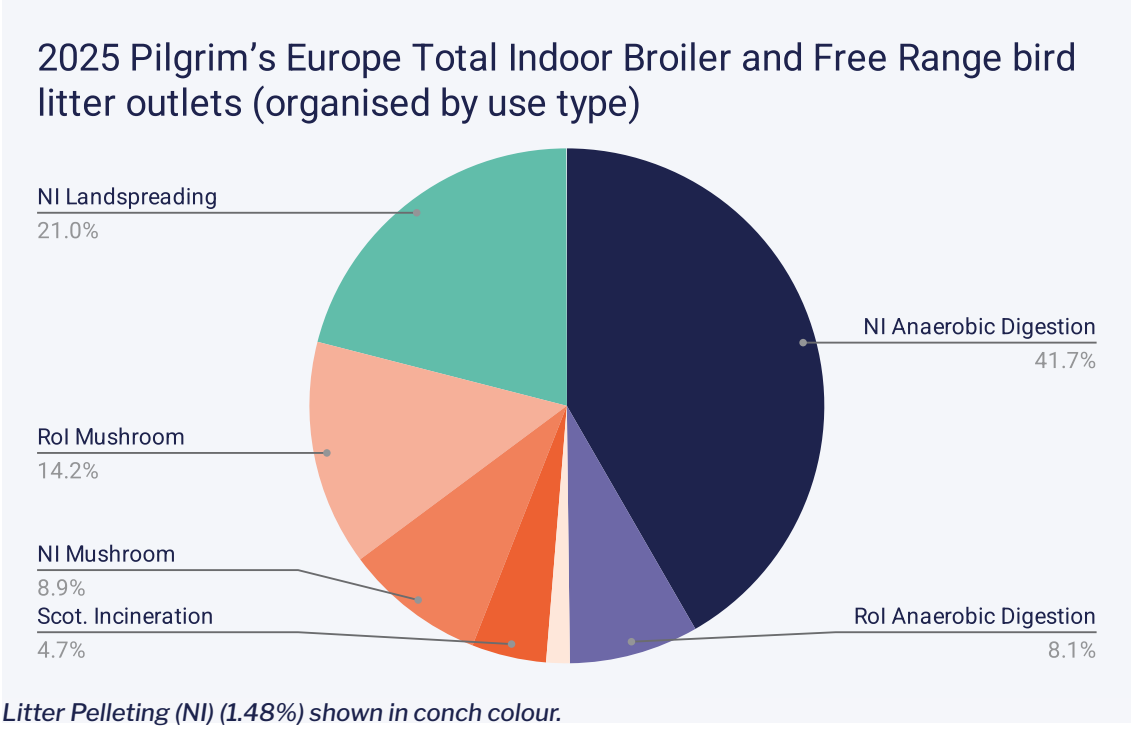
Pilgrim's Europe Responses:

When approached for comment, Pilgrim's Europe disputed the findings of this report, stating that it "intentionally relies on out of date information - some over 10+ years old – and incorrect assumptions, and does not accurately represent where we are as a company today". A spokesperson for Pilgrim's Europe also said:

> "We are committed to the highest environmental outcomes for our farmer base and have invested considerably in science-based solutions and partnerships over the past decade.
>
> "It is not constructive to repeat outdated and inaccurate information particularly recent unfounded activist[']s claims singling out our farmer operations with regard to Lough Neagh.
>
> "As outlined below, our Northern Ireland poultry meat operations are highly regulated, transparent, and transitioning rapidly toward fully circular, off-land litter management, delivering environmental protection, renewable energy and circular economy benefits.
>
> **"2025 Pilgrim's Europe Total Indoor Broiler and Free Range bird litter outlets:**
>
> "The table below, also submitted to NIEA[']s IPPC team for audit purposes, summarises our 2025 litter management outlets for all our Poultry Meat Birds across Indoor Broiler and Free Range in Northern Ireland."

Type	Nation	County	Litter (%)
Biodigestion	NI	Antrim	31.85
Biodigestion	RoI	Donegal	8.13
Litter Pelleting	NI	Down	1.48
Local AD (Company Delivered)	NI		7.29
Local AD (Independent Delivery)	NI		2.54
Incineration	Scot.		4.68
Mushroom Composting	NI	Tyrone	8.86
Mushroom Composting	RoI	Kildare	9.32
Mushroom Composting	RoI	Wexford	4.85
Landspreading (In compliance with Company NMPs)	NI		8.35
Landspreading (Independent controlled)	NI		12.61

We synthesised the above table by use type and nation, presented on the following page:



Litter Pelleting (NI) (1.48%) shown in conch colour.

The spokesperson for Pilgrim's Europe also included the following:

> **"Highly regulated broiler poultry industry**
>
> "• As the Table shows, in 2025 85% of litter movements and outlets from our contracted broiler farmers in Northern Ireland were company controlled.
> • All are fully traceable either through invoicing, haulier records or cross border Article 48 litter movement certification to DAFM approved sites where applicable.
> • The 15% of litter which we did not move was used by farmers on their own land and so falls under the DAERA NAP inspection standards OR is delivered to a local Biodigester by the farmer directly. These biodigesters also come under the inspection of the NIEA.
> • The table also shows that in 2025, 80% of our litter in Northern Ireland was used off land. We also have plans in place to remove all broiler litter (indoor and Free Range) off land by 2028 when the expansion of the Stream Bioenergy Tully plant in Northern Ireland is complete.
> • All litter outlet information is submitted to NIEA's IPPC team who inspect over 80% of all Pilgrim's contracted broiler birds in NI, and consequently 80% of all of our litter movements in NI."

We asked NIEA and DAERA if they could confirm 80% of Pilgrim's broiler birds and litter movements are inspected as the company claimed. DAERA declined to comment without seeing the full report. The spokesperson for Pilgrim's Europe also included the following:

> "• IPPC farms are audited for compliance and must disclose which outlet received litter from his/her farm. Company tonnage figures are cross-referenced with haulier's documentation left on that farm and the information which we supplied to IPPC.
> • We do not have any contracted farms in ROI, nor do we send any litter for land spreading in the Republic. Details are provided for % volumes sent to Glenmore Biodigester in Donegal and for Mushroom Composting in ROI. These are interim outlets as we await phase 2 of the Tully Stream Bioenergy Biodigestor to come on stream in 2028."

> "• Much of your information covered the alleged falsification of planning documentation, particularly with regard to litter disposal in the Republic of Ireland. As above we do not send any litter for land spreading in the Republic of Ireland.
> • Every planning application must include details of the litter outlet, and each planning application will be given a reference number by that council. The planning details will then be loaded onto the planning portal and be publicly accessible. We support full enforcement against any bad actors who falsify documentation."

This report does not cover or rely on falsified planning documentation to the best of our knowledge. We cite a data table from a separate set of documents included in a long read series on poultry farming by The Journal (2022), which also covers the alleged falsification of Teagasc letters (planning documentation) in the article. There is nothing in The Journal article that alleges falsification of poultry litter export documents and nothing in our correspondence with the Bureau of Investigative Journalism, which obtained the export documents, to indicate alleged falsification. We clarified this with Pilgrim's Europe, and asked if they were aware of any falsification or alleged falsification of poultry litter export documents, Pilgrim's Europe stated:

> "We want to make it clear that as evidenced in the information provided that Pilgrim's Europe does not have any contracted farms in ROI, nor do they send any litter for land spreading.
>
> "NO – the 2021 consignment documents referred to, compiled from documentation supplied to DAERA by the company at that time, clearly show Consignor, Consignee, Destination, Date and Weight of each litter movement. Permission from the Department of Agriculture, Food and the Marine (DAFM), by way of a licence (Article 48), is also required to move the poultry litter to Ireland enabling a transparent and auditable process."

When asked if Pilgrim's Europe has previously exported chicken litter over the border, to be spread on land, in any of the other years within 2012-2025, Pilgrim's Europe replied:

> "In 2021, landspreading in ROI represented 10% of our total litter management. As evidenced in our initial response, over the past 10 years our Northern Ireland operations have been working towards fully off-land broiler litter management. In line with this, the company has not sent any litter for landspreading in ROI since 2022."

Pilgrim's Europe initial response continued with the following:

> **"Bird numbers"**
>
> "• While your report alleges that larger farms are the issue, it misses the point that IPPC poultry farms over 40K bird places (representing the majority of our Northern Ireland estate) are fully regulated as above. Farms below 40k bird spaces, more prevalent in other industries, are not regulated to the same standard.
> • The report also appears to confuse litter from commercial egg birds and broiler poultry meat birds. We only produce poultry meat birds.
> • From the publicly available current NAP publication by DAERA you will see that every 1000 broilers will produce 1t of litter. From this you can calculate Broiler bird numbers and understand that the Commercial Egg industry now forms the largest part of the Poultry industry in NI."

"• Our bird numbers have reduced over the past number of years as we have moved to higher welfare lower stocking density production - moving from 38kg stocking densities to 30kg as well as Better Chicken Commitment (BCC) standard for some customers. All Pilgrim's Europe BCC is produced in Northern Ireland.
• The move to higher welfare represents a loss of 20% of our original bird space which we now need to replace to return to 2023 production levels. This is the reason why we have a number of planning applications being forwarded at present. All are subject to extensive environmental screening, 90% to IPPC licencing and all to strict litter management."

"Waterways"

"• We are aware of activist comments conflating poultry farming with historic factory trade effluent exceedances. These views are misleading and inaccurate. If they are to be repeated, they must be clearly distinguished as opinion and balanced with the facts as outlined below.
• Poultry is a high regulated industry with the majority of our farms subject to Integrated Pollution Prevention and Control (IPPC) permitting and monitoring to minimise environmental impact.
• ~80% of all farm broiler poultry litter in Northern Ireland is taken off land. It is then used to either power the Stream Bioenergy AD plant (Tully 1) in NI creating renewable energy for 6,000 homes, sent for incineration or used for mushroom composting. The remainder is managed by farmers in compliance with nutrient management planning as per DAERA requirements for soil testing and audit.
• In 2028, the Tully 2 expansion will be operational and this will enable 100% of all our poultry litter produced from broilers in NI to be sent for biodigestion creating renewable energy, as well as displacing the need for 2.5% of natural gas imports while producing 20,000t of biogenic CO2 for industrial use (all of which is currently imported).
• It is also important to clarify that when operational **NO** digestate from the Tully Biodigester will go to land either. All excess water will be removed and 3 fertiliser types produced, sold to horticulture and fertiliser companies for onward marketing.
• With regard to historical trade effluent exceedances at our Dungannon processing facility reported in a wider feature on Lough Neagh in June 2024; **no untreated discharge entered any waterway.**
• All effluent waste was treated on site and then further treated at the NIW substation in a closed loop.
• There have been no further environmental exceedances at Dungannon (or any other NI site). At Dungannon, we are also investing £6m in a new onsite effluent treatment plant which will be fully online by 2028.
• As acknowledged by scientists, a NI Government report and the original BBC Spotlight investigation into this matter in 2024 which looked at trade effluent, NI Water sewage network breaches, illegal dumps and cattle slurry agricultural run-off as well as subsequent reports highlighting potential further contributing factors, it is a complex issue with no single farm or sector responsible.
• As outlined above we are subject to extensive regulation and have invested private capital to remove our poultry litter from land to avoid runoff and continue to invest in upgrades to our factories in line with Best Available Techniques and to further minimise our environmental impact."

Pilgrim's Europe did not comment on the links to retailers identified in this report.

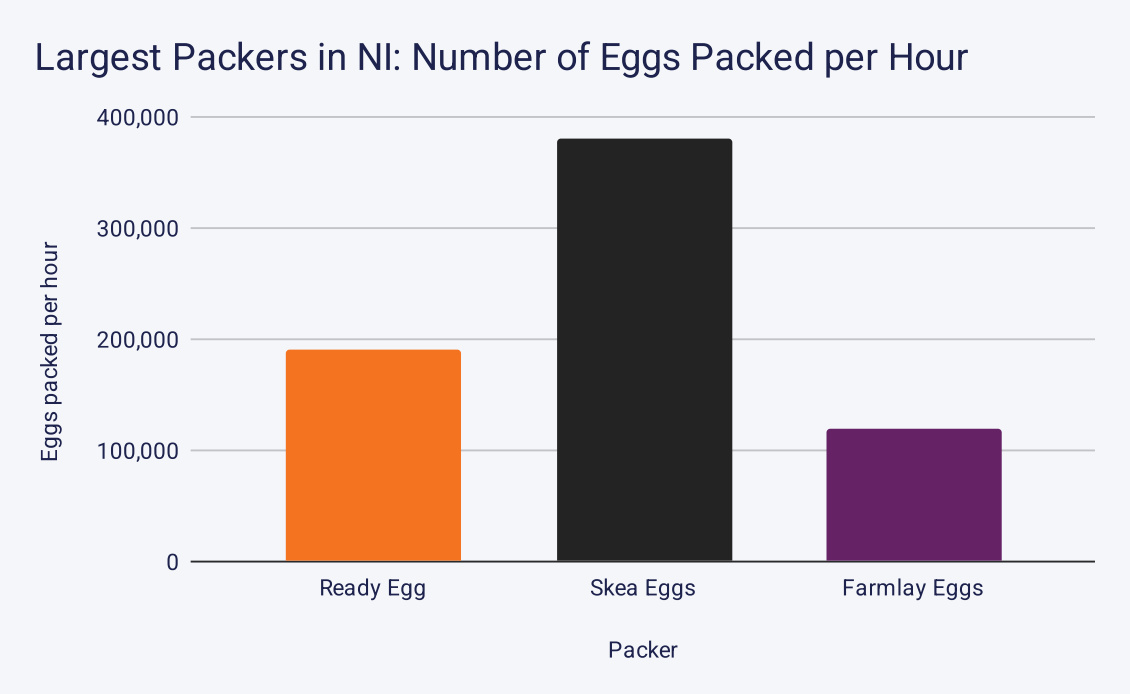
Mapping Egg Supply Chains:

The egg sub-sector in Northern Ireland is significantly less consolidated than broiler supply chains, and less information is available on the structure or hierarchy of companies based in Northern Ireland. **However, Ready Egg is the largest egg packing company (parent of Skea Eggs), with a variety of smaller Northern Irish egg packing competitors. Direct farm exports (or farms contracted to) large British packers account for almost a third of hens.** Out of a list of the top ten UK egg packagers, published by The Grocer in 2023 (Duncan 2023), two were based in Northern Ireland: Ready Egg and Skea Eggs. Ready Egg bought Skea Eggs in 2022 (Wright 2024).

Some of the top ten British companies do source from farms in Northern Ireland, including Stonegate and Chippindale (Wright 2023). However, currently the majority of eggs produced in Northern Ireland are also packed within the border (DAERA 2026c). According to the latest May 2025 survey, 74% of eggs were packed within Northern Ireland and 26% exported for packers in Great Britain. 73% of the laying hens in May 2025 were incorporated into Northern Irish packer supply chains. Egg sub-sector sales statistics suggest that egg packers and processors within Northern Ireland rely on Great Britain as their largest market (DAERA and NISRA 2022a). Likely 77% of egg sales value is derived from exported eggs, according to the latest statistics.

Ready Egg claims to be the "largest egg processor in the UK and Ireland", however, it is unclear what this claim is based on (Department for the Economy 2025). Skea Eggs is reportedly the "biggest producer" of eggs in Northern Ireland (Food NI Ltd 2024). We compared publicly available statistics from egg packers on the number of farms, hens or eggs within their supply chain.

County	Eggs packed per hour
Skea Eggs	380,000
Ready Egg	190,000
Farmlay Eggs	118,800



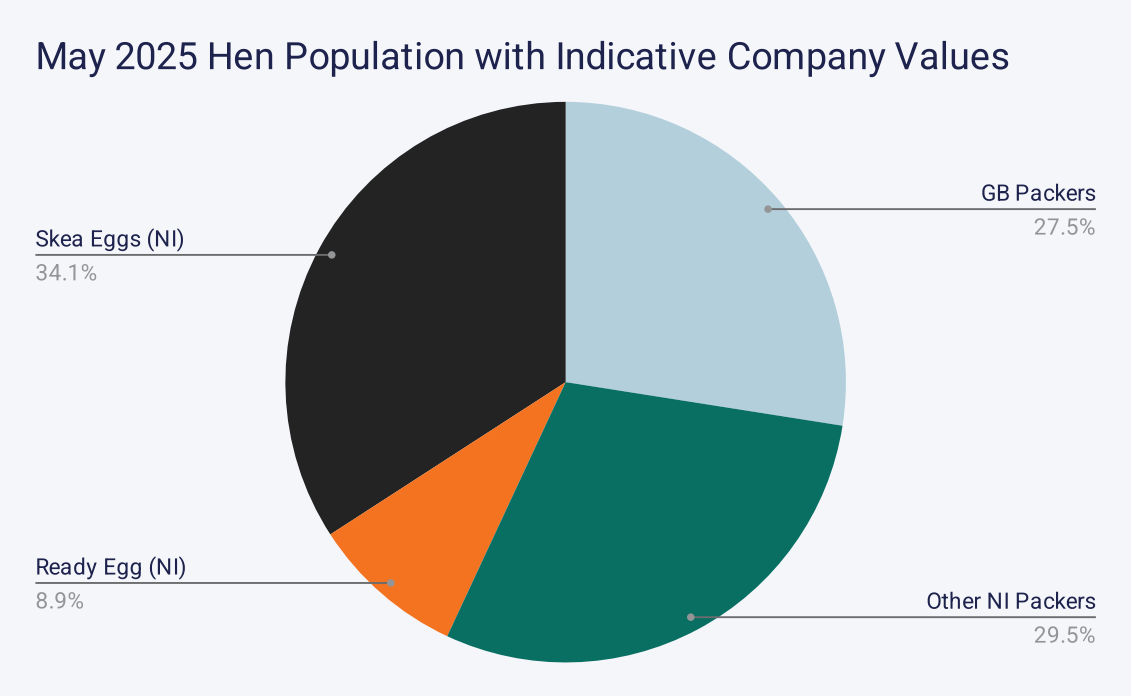
A detailed open source farm-by-farm survey was outside the scope of this study for the egg sub-sector, which focused on the more consolidated meat industry with established open source research methods (Materiality et al. 2024).

Skea Eggs has the highest egg packing capacity, at 380,000 per hour, with the parent company Ready Egg providing 190,000 eggs per hour of "additional grading capacity" (Skea Eggs 2026a). A third significant packer was Farmlay eggs, with 118,800 eggs per hour capacity, who describe themselves as a "leading independent" packer in Northern Ireland (Farmlay Eggs 2026b, 2026a). All other egg packers found with egg, farm or hen numbers published were much smaller operations.

Of the 9,812,387 egg laying hens recorded in May 2025, 73% are within Northern Irish egg packer supply chains, 7,115,317 hens (DAERA 2026c). **Our conservative estimate for the number of hens in Ready Egg's supply chain accounts for 59% of the Northern Irish packer hen supply chain.**

Skea lists 3,350,000 hens in their supply chain, across 194 farms (Skea Eggs 2026b). Ready Egg likely has a minimum of 875,000 hens in their Lisnaskea packing site supply chain, according to an older figure from before their Skea acquisition (Irish Tractor & Agri 2016). This is almost double the number of hens that supply eggs directly to packers in Great Britain. Ready Egg source 80% of eggs from farms within 20 miles of their Lisnaskea base. Drawn on a map (overleaf) this likely excludes Skea Eggs' supply chain (Ready Egg 2026). No other clear spatial information was found for the major egg packer sourcing areas.

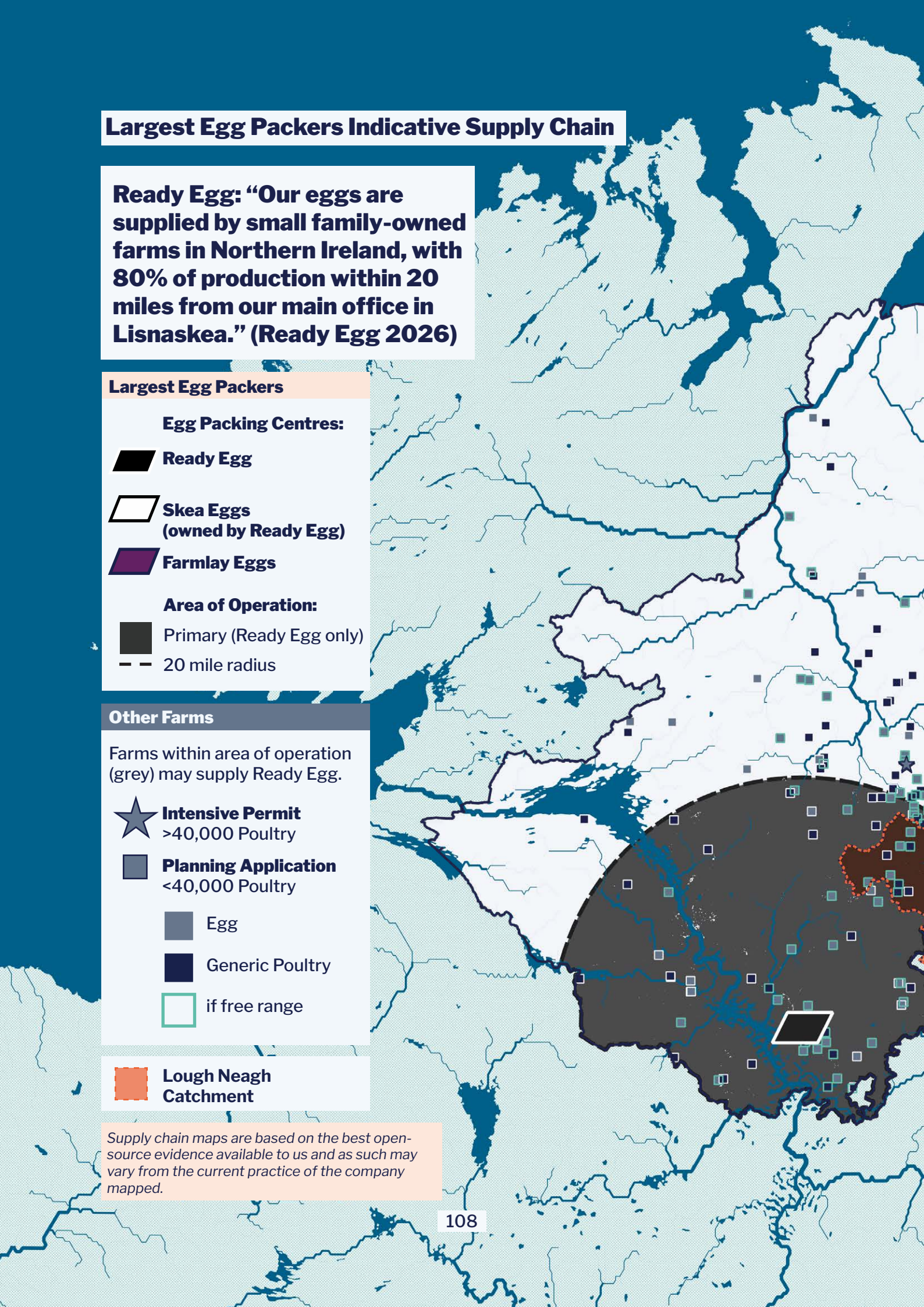
Skea Eggs has supplied Spar, Asda, Sainsbury's, Tesco UK, M&S, Co-op, Aldi* and Ocado* (Food NI Ltd 2018; Henderson Group 2023; Sainsbury's 2024; Tesco 2025b; Henderson Group 2026; Skea Eggs 2026b; Open Supply Hub 2026b). It is likely that Skea Eggs has also supplied Centra and Supervalu, as they have supplied the parent company Musgrave Group (Food NI Ltd 2018; Musgrave Group 2026). Ready Egg (Skea Eggs) and Farmlay Eggs declined to comment without reviewing the full report. SPAR confirmed that Skea Eggs supply five stores in Northern Ireland, and that Ready Egg do not supply SPAR. M&S did not confirm suppliers, please see page 85 for full SPAR and M&S comments. All other retailers linked to Ready Egg or Skea Eggs did not respond to our requests for comment.



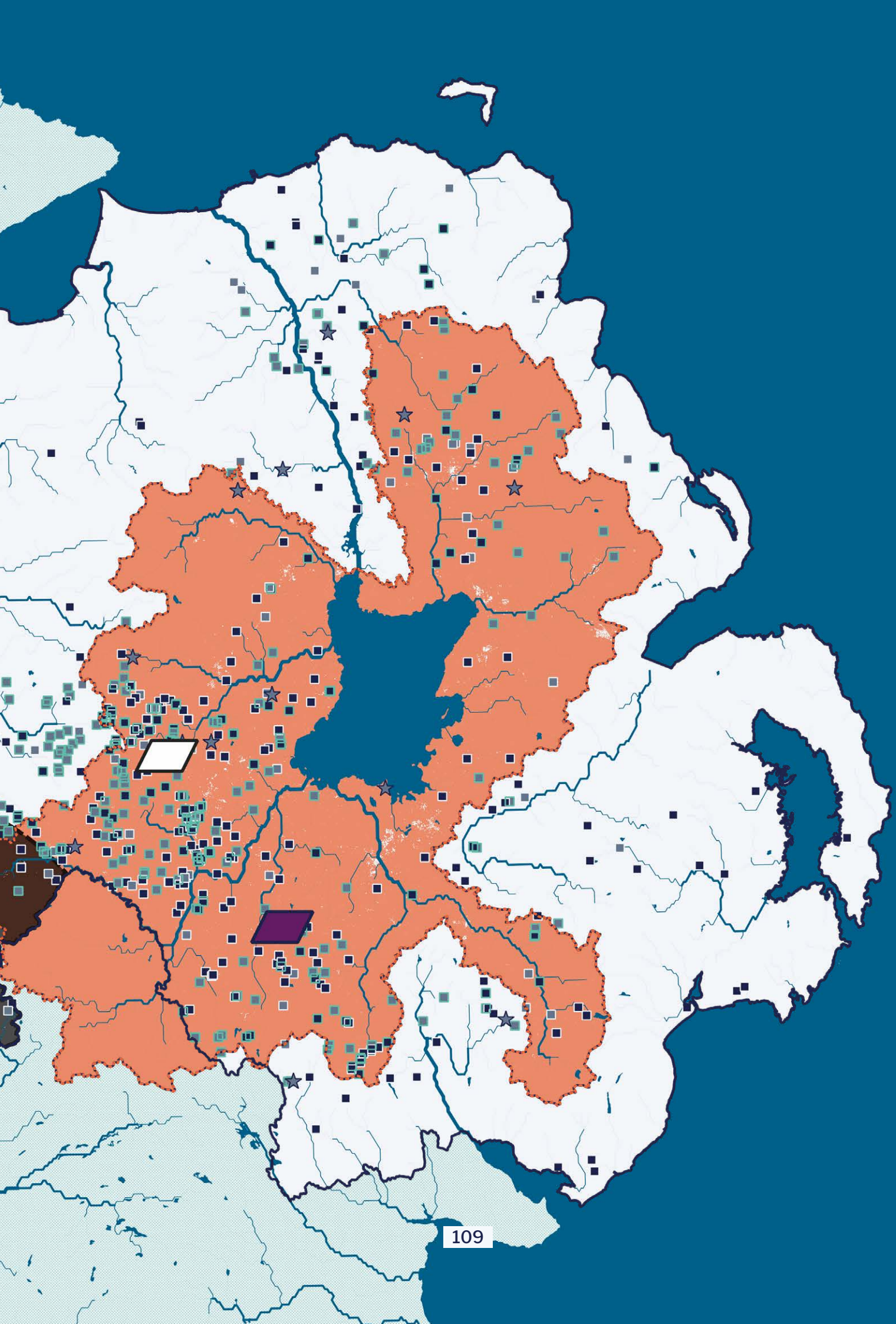
**Aldi only have stores in GB and not NI. Ocado does not operate in NI.*

Largest Egg Packers Indicative Supply Chain

Ready Egg: "Our eggs are supplied by small family-owned farms in Northern Ireland, with 80% of production within 20 miles from our main office in Lisnaskea." (Ready Egg 2026)



Supply chain maps are based on the best open-source evidence available to us and as such may vary from the current practice of the company mapped.



Mapping Karro and Cranswick:

Cranswick Country Foods PLC and Karro Food Group are the two dominant pig processing companies in Northern Ireland. Cranswick is a publicly listed company, while Karro is owned by Sofina Foods, headquartered in Canada (Sustain, Materiality, and Friends of the Earth 2024). Karro has traded under the Cookstown sausage branding and Cookstown is listed on Sofina's brands web page (Cookstown 2026; Sofina Foods 2026). Karro is a main supplier for Finnebrogue, which is also owned by Sofina Foods (Sofina Foods 2025; Finnebrogue 2026).

	Pigs slaughtered per week	Notes
NI Total	38,184	Calculated weekly average (DEFRA 2025b)
Karro	24,000	(O'Neill 2021)
Cranswick	13,000	(DAERA 2024c)

Unlike the poultry sector, these companies are less established and seem to be in the process of integrating their supply chains - a process of consolidating control over the supply chain through the ownership of key sites and subcontracting production.

An emerging actor is JMW Farms, which has supplied Karro*. This company owns and operates farms across the island of Ireland and Great Britain. It is involved in breeding and growing pigs, milling feed, has attempted to open a slaughterhouse and has operated an anaerobic digester (Irish Times 2016; McAleer 2021). JMW has processed both pig and poultry waste, accepting litter from Pilgrim's Europe (Moy Park) from 2013 (Source Material 2018)**. JMW has reportedly supplied Sainsbury's, Tesco and Asda (Mellen and Philpot 2018; Source Material 2018).

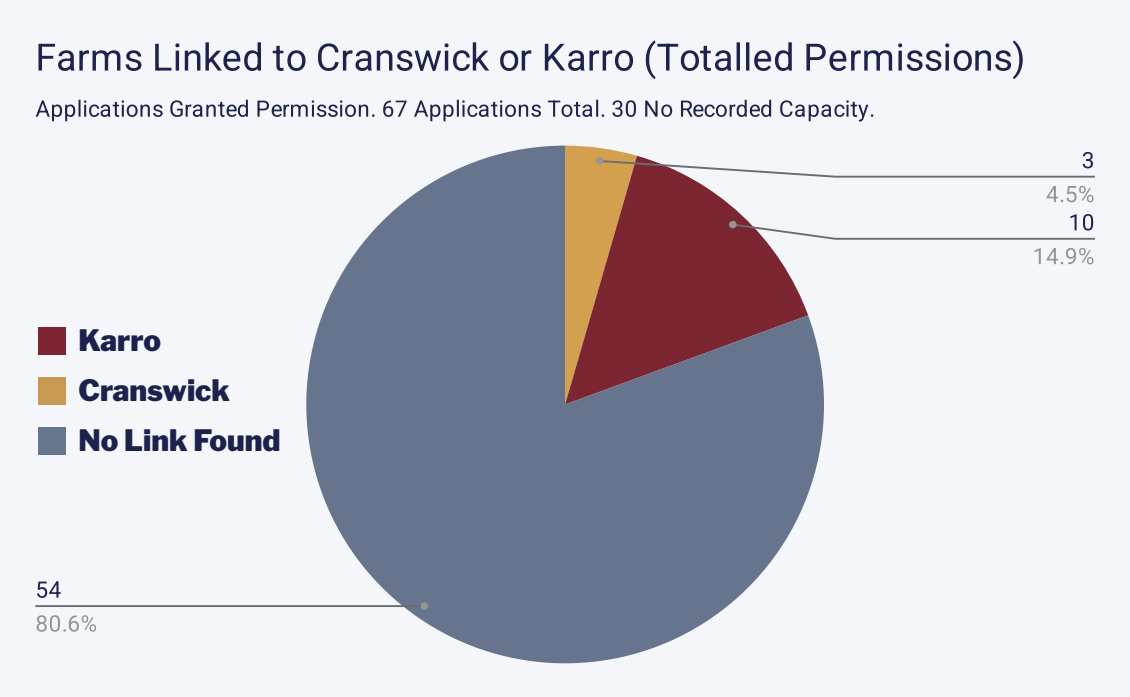
Sofina Foods (Karro) declined to comment without reviewing the full report. Finnebrogue, Cranswick and JMW Farms did not respond to our requests for comment. SPAR confirmed that Karro is a supplier, while M&S did not confirm suppliers, please see page 85 for full SPAR and M&S comments. All other retailers linked to Karro, Cranswick or JMW Farms did not respond to our requests for comment.

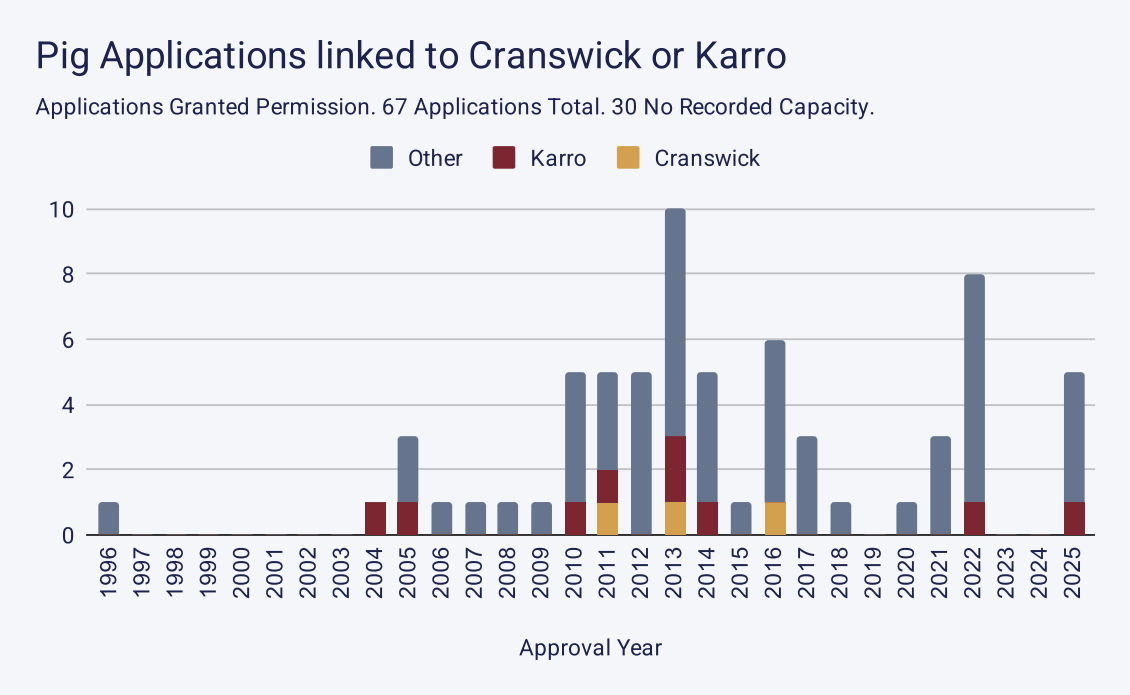
Cranswick, Ballymena.

Sofina (Karro), Cookstown.

**Trucks operated by JMW and branded with JMW Farms were photographed at Karro's Cookstown slaughterhouse on Google Street View in 2010, 2011 and 2021.*
***JMW replied to the Source Material article but did not address the Pilgrim's Europe (Moy Park) connection. Source Material gave the Pilgrim's Europe (Moy Park) response to this link as: 'litter arrangements with the other plants are "independent of Moy Park"'.*

A total of 67 pig planning applications were identified and most remain unlinked. Of these, 10 were linked to Karro, 3 to Cranswick and 54 unlinked.





8 intensive permits (next page) have been linked to Karro, 3 to Cranswick, 1 farm was linked to both* and 2 remained unlinked. 56% of pigs are in farms linked to Karro, and 22% in Cranswick linked farms, 7.3% of pigs are in farms linked to both.

**The population for the farm linked to both has been counted in both categories.*

Karro:

Sofina (Karro), Cookstown.

Karro operates a slaughterhouse in Cookstown, which as of 2022 was the largest 'pigmeat processing centre' in the UK and Ireland (KPMG and Irish Farmers Journal 2022). The site processes around 24,000 pigs per week according to reporting in 2018 and 2021 (O'Neill 2021).

A 2022 industry magazine reported that one million pigs are processed per year, sourced from 150 farmers across Northern Ireland and the Republic (Grocery & Retail Ireland 2022). Using the latest available figures*, we estimate around one in three pigs is imported from Ireland, with the remaining two raised in Northern Ireland. This equates to 67% sourced from Northern Ireland and 33% imported from the Republic of Ireland, however this figure may fluctuate each year.

The company also operates in Scotland and Yorkshire, where they have greater ownership of their supply chain, owning farms and feed mills as well as a slaughterhouse in Malton (Kirk 2014a; 2014b). Karro has supplied Asda, Tesco, Sainsbury's, Iceland, M&S, Spar, Morrisons* and Aldi* in the UK (Irish Tractor 2016; Grocery & Retail Ireland 2022; Sainsbury's 2024; Iceland 2026; Open Supply Hub 2026b, 2026a, 2026c; Aldi UK 2026). Looking at the Republic of Ireland, Lidl, Dunnes Stores, SuperValu and Centra have been supplied by Karro (Blas na hÉireann 2021; Grocery & Retail Ireland 2022; SuperValu 2022; Centra 2026). Finnebrogue has supplied Morrisons*, Waitrose and Ocado* in the UK and Tesco in the Republic of Ireland (Morrisons 2025; Waitrose 2026; Ocado 2026; Tesco 2026).

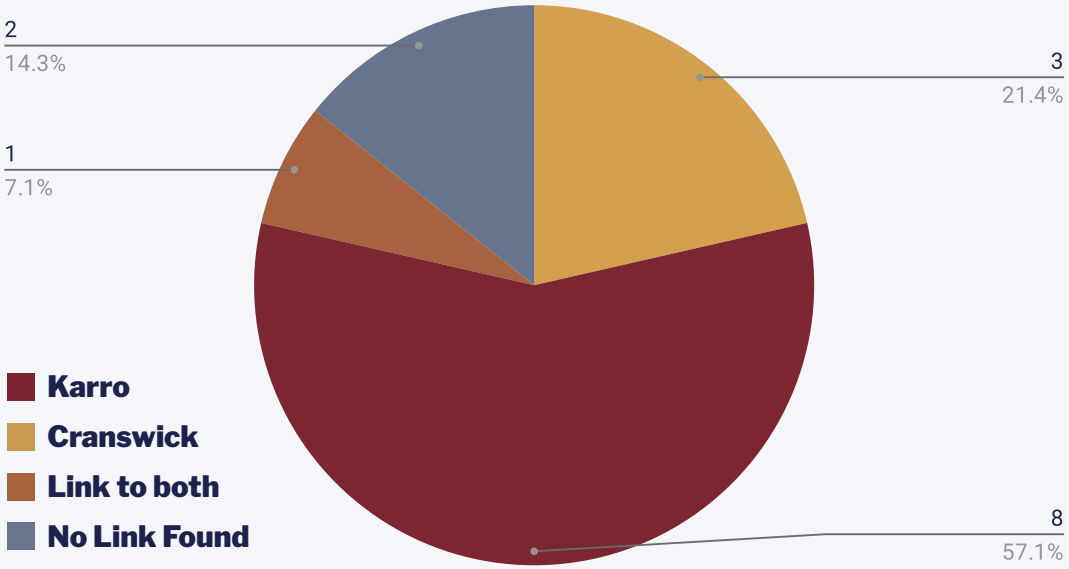
Cranswick:

Cranswick operates a slaughterhouse in Ballymena which processed 13,000 pigs per week in 2024 (DAERA 2024c). The company bought the Ballymena slaughterhouse from Dunbia in 2016 (Cranswick 2016). 85% of the 13,000 pigs were sourced from Northern Ireland, with the remaining 15% imported from Ireland. In 2021, Cranswick's Animal Welfare Report detailed that 51% of pigs were sourced within a 1 hour journey time, 76.1% were within 2 hours, and 95% in 3 (Cranswick 2021). Their 2020 Annual Report was more specific, listing 19% within 25 miles, 43% within 40 miles, 51% within 50 miles, and 76% within 60 miles (Cranswick 2020). These distances have each been mapped as a radius and the percentages converted to aid comprehension on the supply chain map (pages 116 to 117).

This represents a third of Cranswick's UK operations, with the remainder based primarily in Yorkshire, Lincolnshire and Norfolk (Cranswick 2021). While Cranswick do operate feed mills in England, it's unclear if they do so in Northern Ireland (Cranswick 2024b). Cranswick is moving towards vertical integration (Cranswick 2024a), meaning that it may look to operate feed mills in Northern Ireland and consolidate control over its supply chain. Cranswick has supplied Morrisons**, Asda, Sainsbury's, Tesco, M&S and Lidl (Sustain, Materiality, and Friends of the Earth 2024).

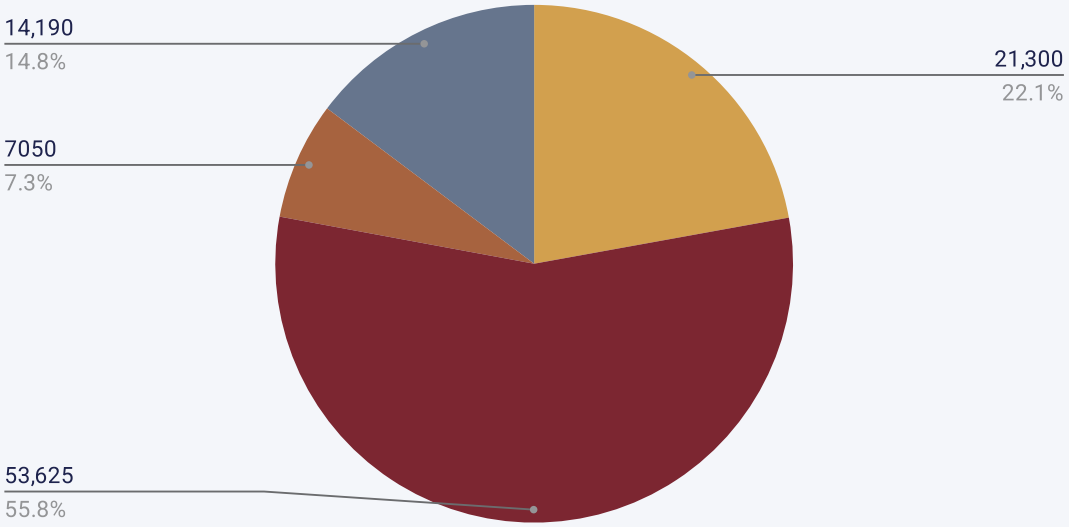
** A synthesis of figures for total processed and imported pigs between 2018 and 2022. (IFA 2018; O'Neill 2021; KPMG and Irish Farmers Journal 2022; Grocery & Retail Ireland 2022)*
***Morrisons only have stores in GB and not NI.*

Intensive Pig Permits Linked to Cranswick or Karro



Pigs Linked to Cranswick or Karro (Intensive Permits)

Livestock Population Capacity

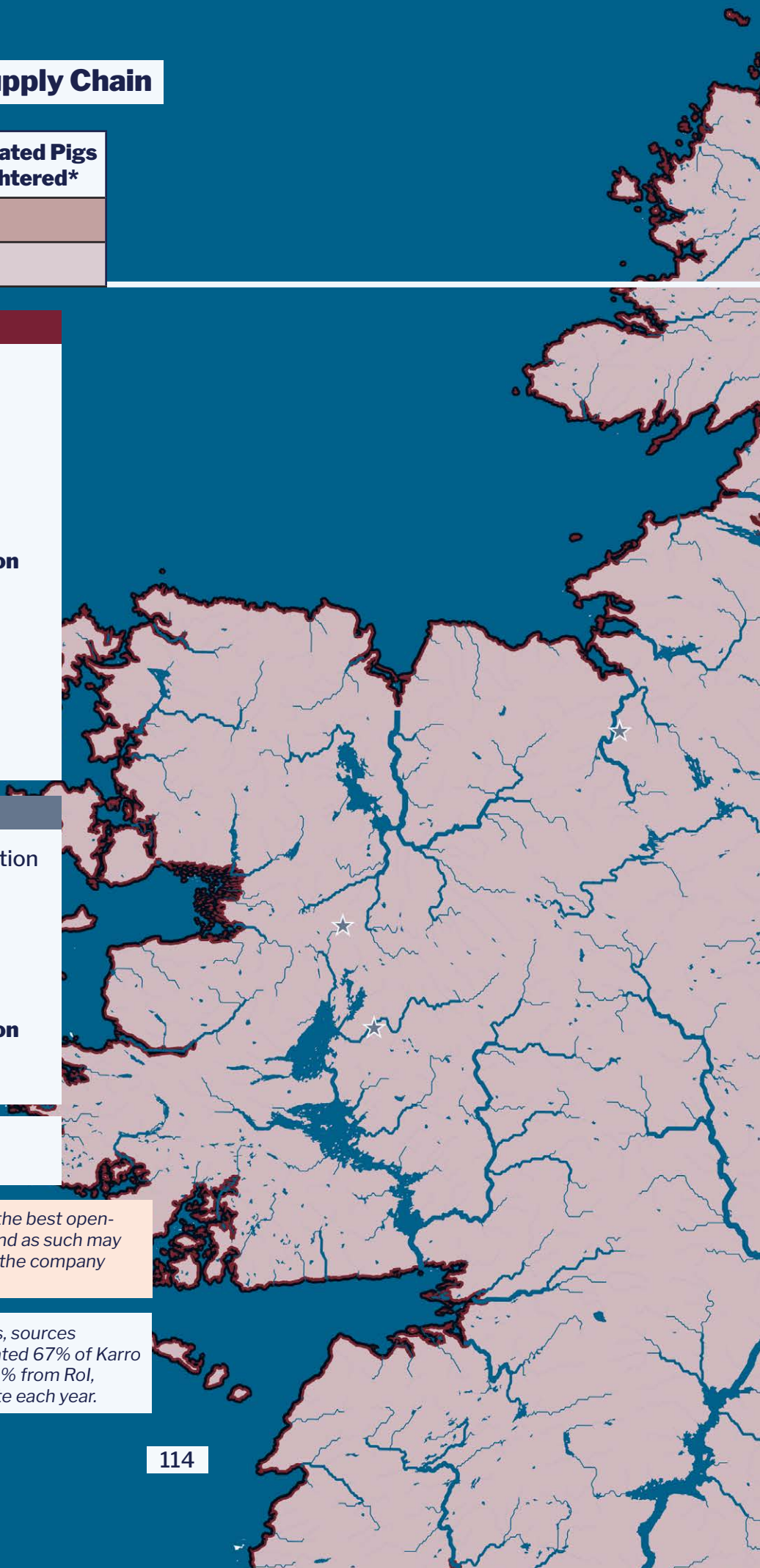


Methods:

We used open source investigation techniques to search for links between farms and Karro or Cranswick. A farm 'linked' to Cranswick/Karro means that we judge it as likely to have supplied Cranswick/Karro or currently supply Cranswick/Karro. It is not definitive evidence that the farm currently holds a contract with Cranswick/Karro. Stocking practices vary: farms do not hold pigs every day of the year and may hold less than the maximum capacity.

Karro Indicative Supply Chain

Source Nation	Estimated Pigs Slaughtered*
Northern Ireland	67%
Republic of Ireland	33%



Karro

Karro Slaughterhouse

Intensive Permit linked to Karro
>2000 Pigs
>750 Sows

Planning Application linked to Karro
<2000 Pigs
<750 Sows

Area of Operation:

See Table Above

End of supply chain

Other Farms

Farms within area of operation may supply Karro

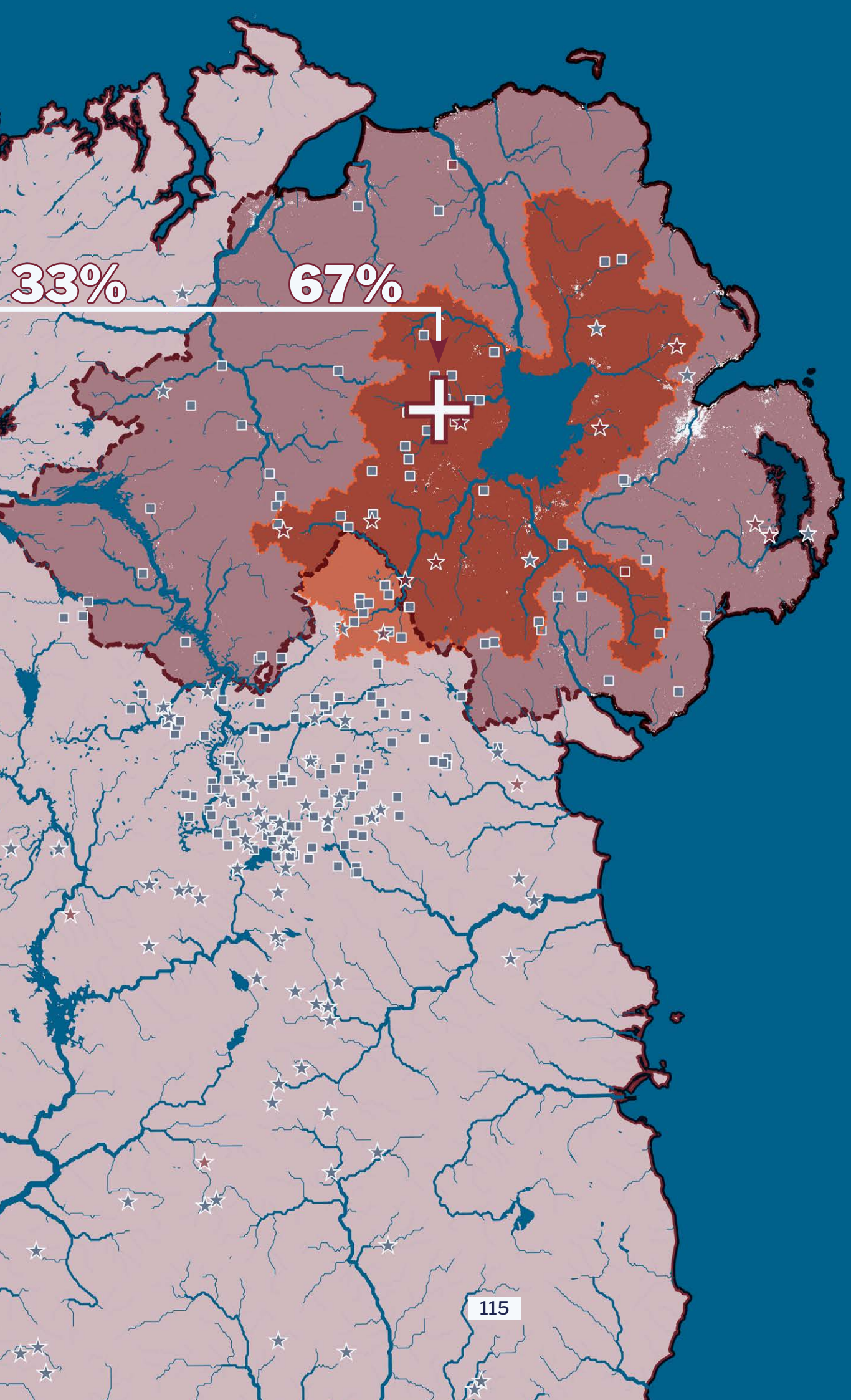
Intensive Permit
>2000 Pigs
>750 Sows

Planning Application
<2000 Pigs
<750 Sows

Lough Neagh Catchment

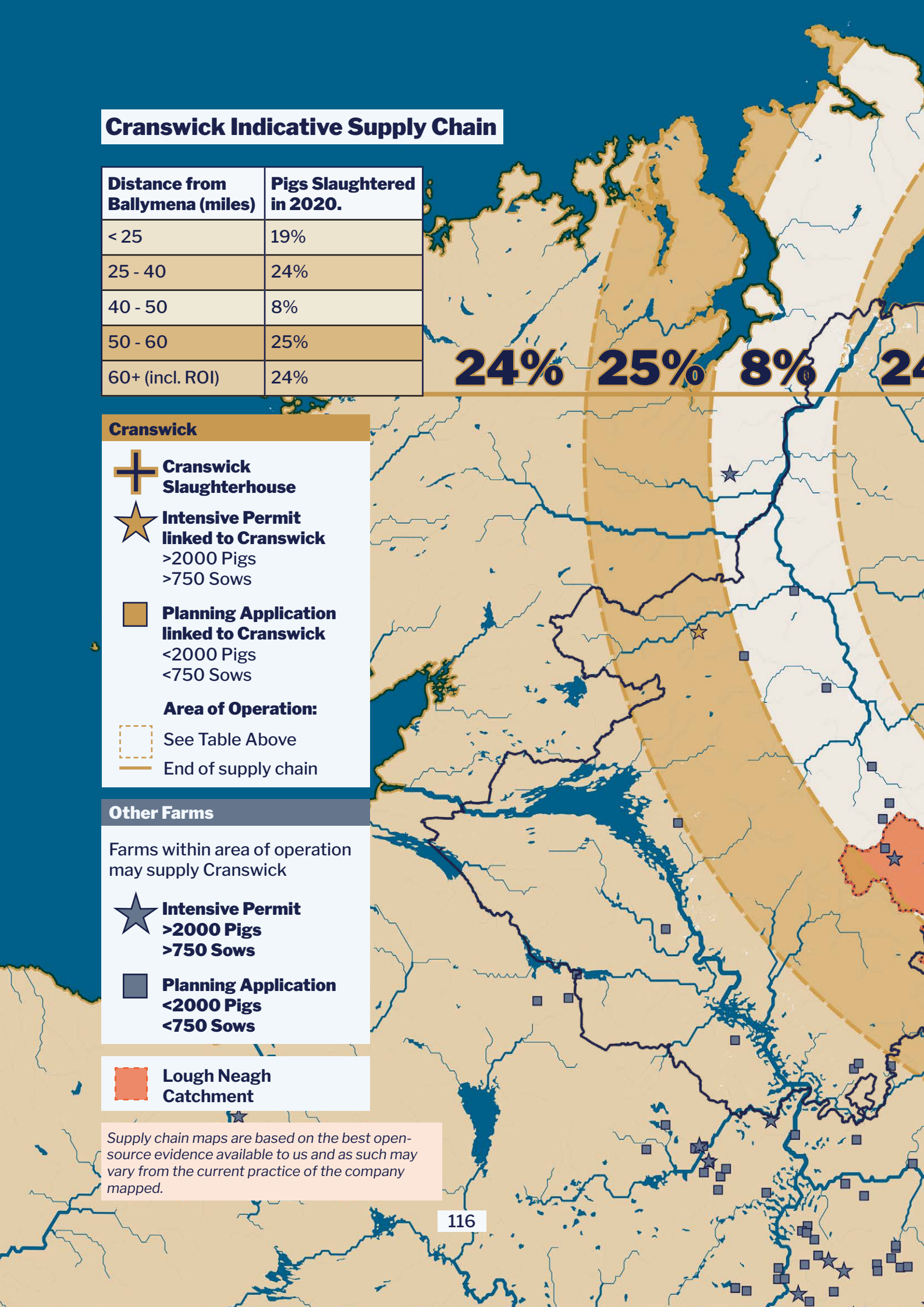
Supply chain maps are based on the best open-source evidence available to us and as such may vary from the current practice of the company mapped.

Using the latest available figures, sources available on page 112, we estimated 67% of Karro pigs are sourced from NI and 33% from RoI, however this figure may fluctuate each year.


33%
67%

Cranswick Indicative Supply Chain

Distance from Ballymena (miles)	Pigs Slaughtered in 2020.
< 25	19%
25 - 40	24%
40 - 50	8%
50 - 60	25%
60+ (incl. ROI)	24%



Cranswick

Cranswick Slaughterhouse

Intensive Permit linked to Cranswick
>2000 Pigs
>750 Sows

Planning Application linked to Cranswick
<2000 Pigs
<750 Sows

Area of Operation:

See Table Above

End of supply chain

Other Farms

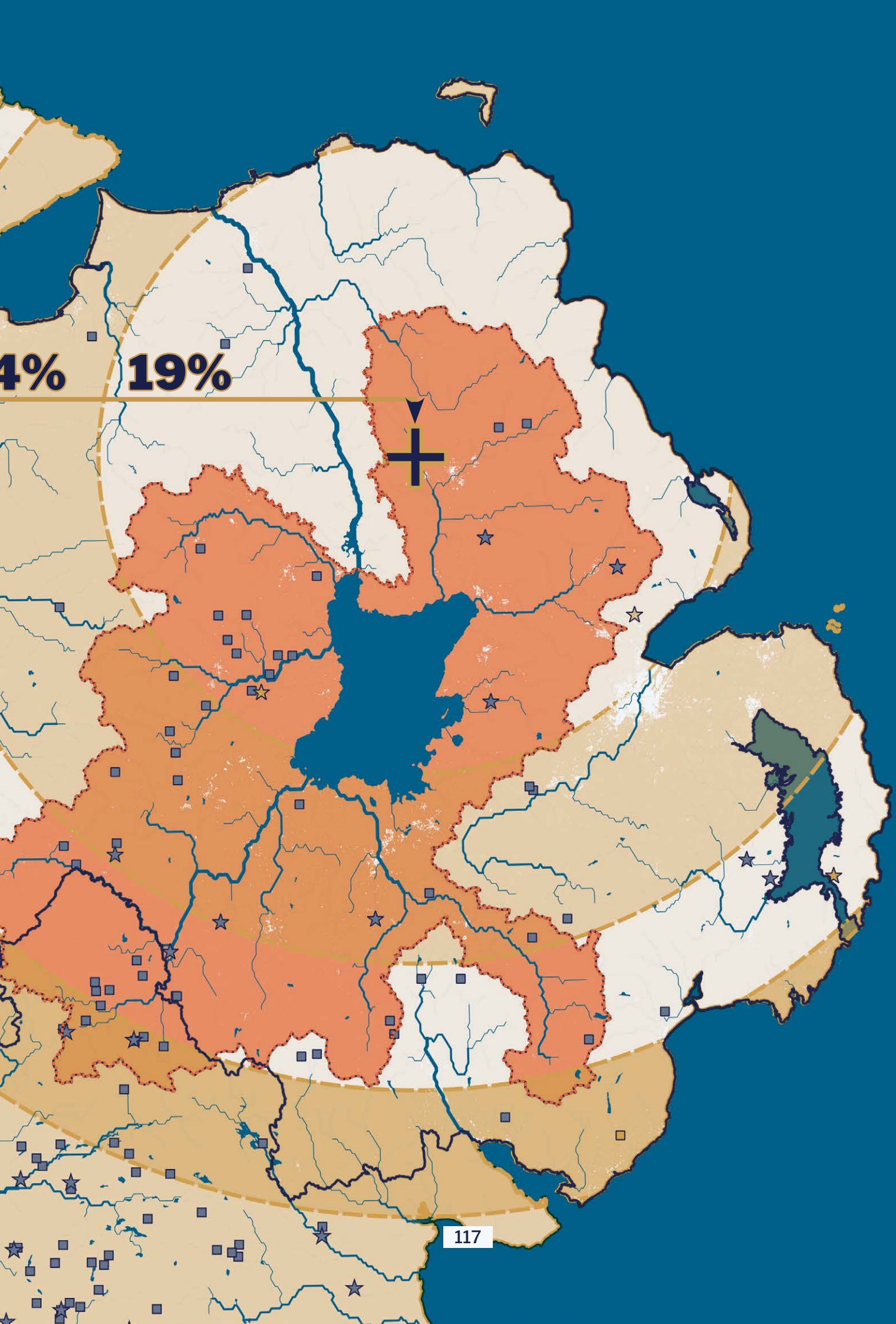
Farms within area of operation may supply Cranswick

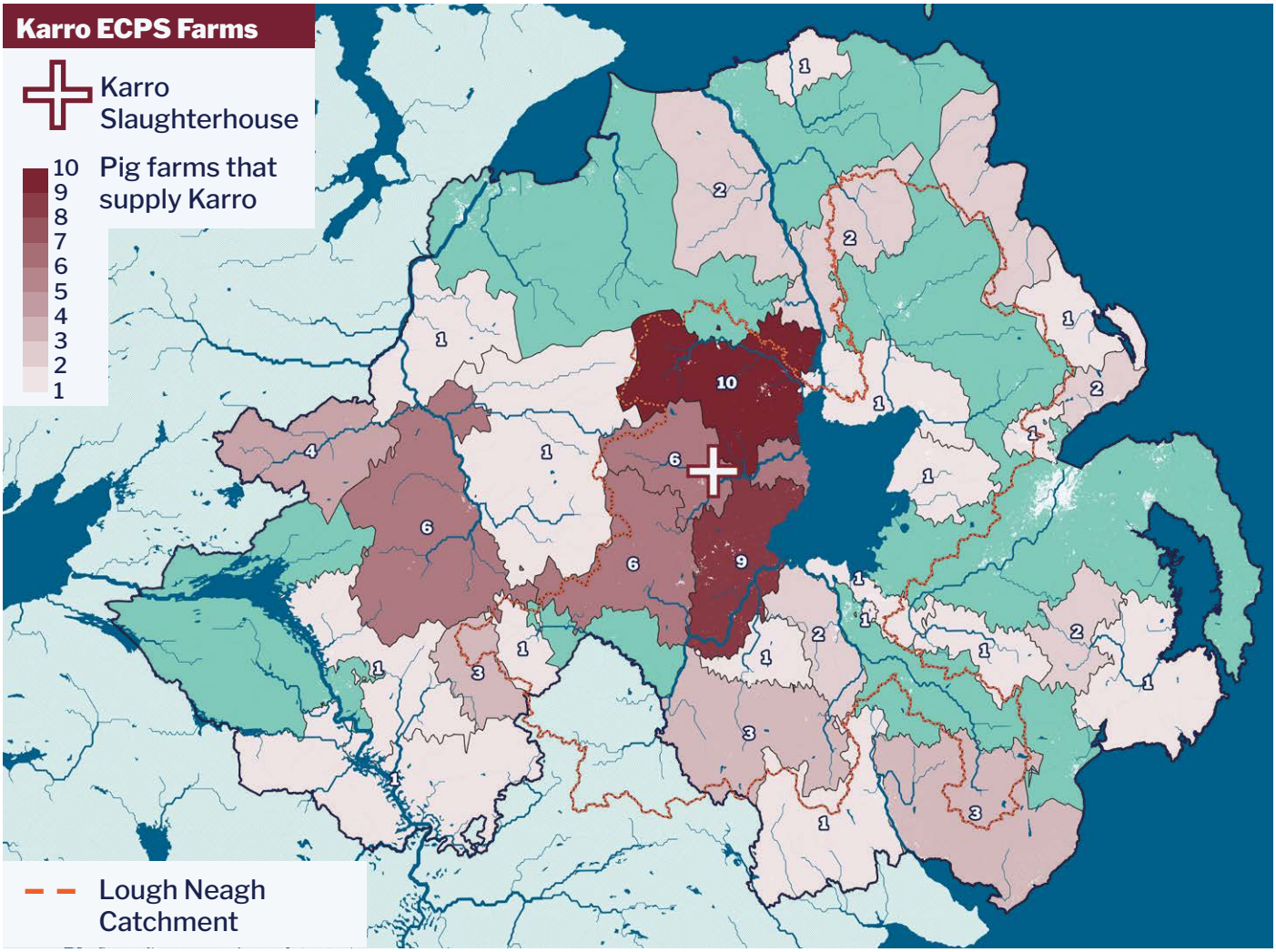
Intensive Permit
>2000 Pigs
>750 Sows

Planning Application
<2000 Pigs
<750 Sows

Lough Neagh Catchment

Supply chain maps are based on the best open-source evidence available to us and as such may vary from the current practice of the company mapped.

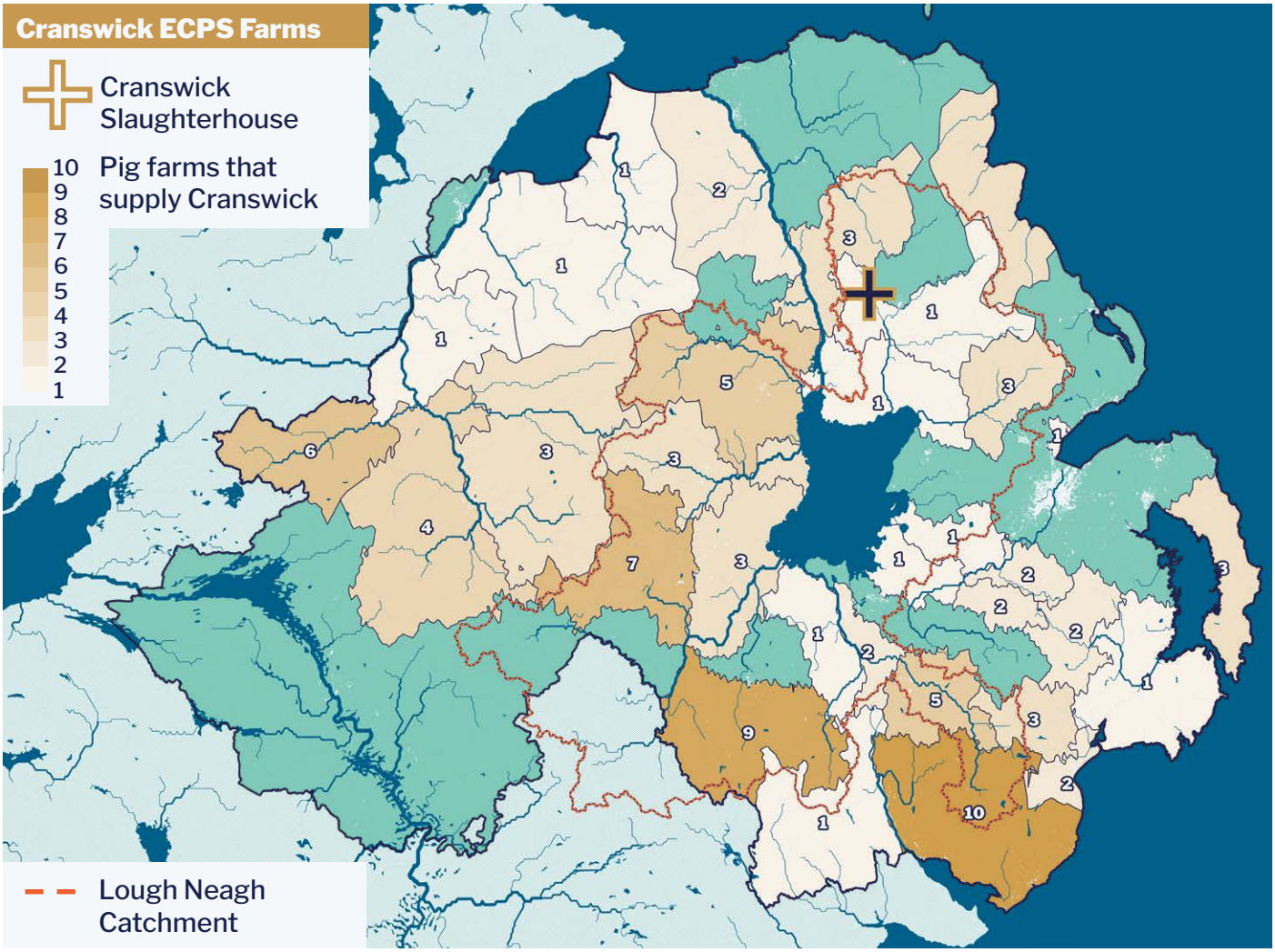

4%
19%



According to the snapshot of operations provided by the ECPS scheme, Karro's farms are predominantly in Tyrone (36), the same county where their Cookstown slaughterhouse is located. The postcode district breakdown indicates that while these farms are spread across Tyrone, there are likely more due south of Cookstown. A denser cluster is due north of Cookstown in neighbouring Derry/Londonderry. This county has 13 farms, Antrim has 9, Down and Armagh both hold 8 and Fermanagh 2. In the ECPS scheme, more farms are identified as Cranswick suppliers, at 90, than the 76 that supplied Karro.

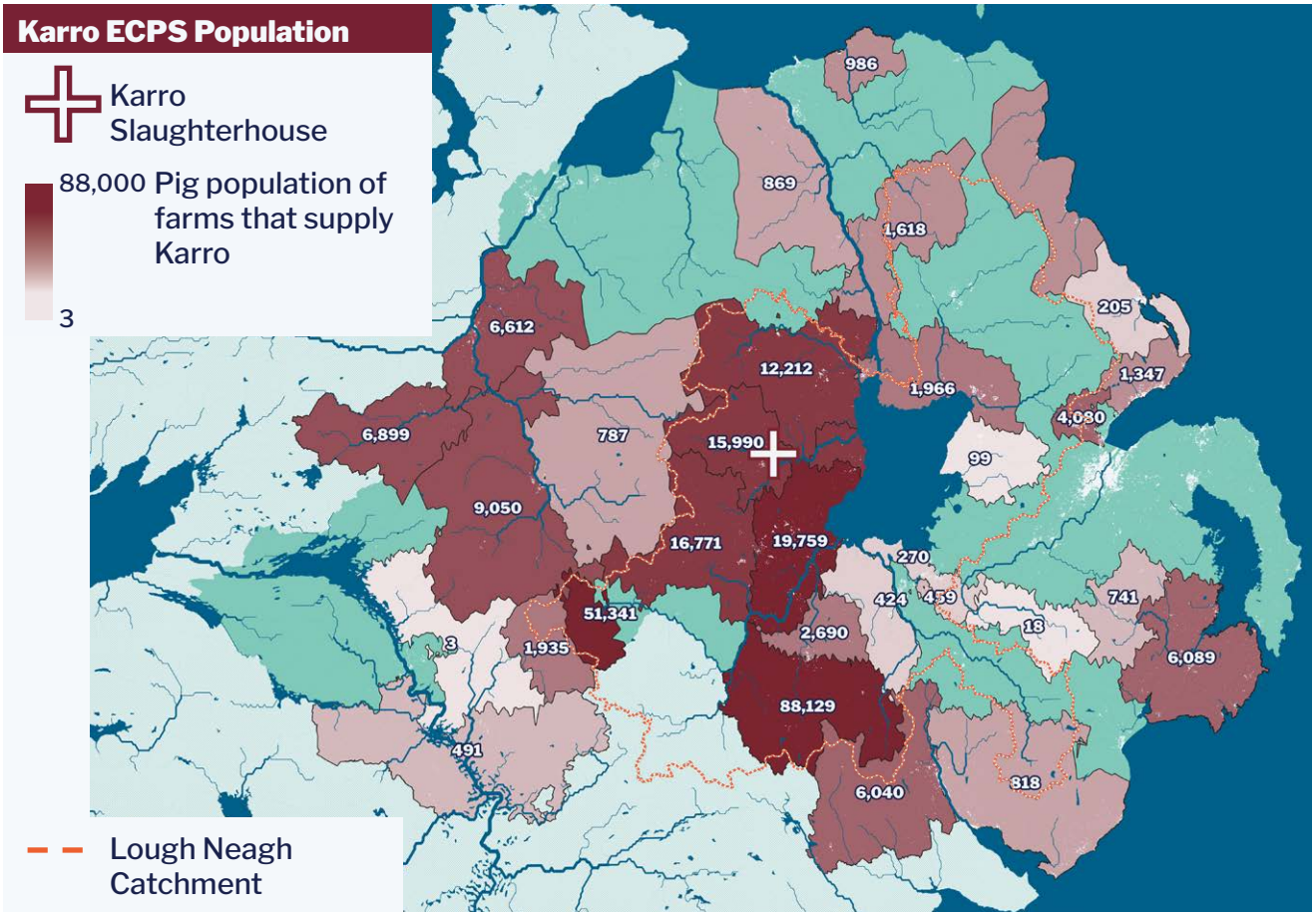
County	Karro ECPS 2022	Cranswick ECPS 2022
Antrim	9	10
Armagh	8	13
Derry/Londonderry	13	9
Down	8	31
Tyrone	36	27
Fermanagh	2	0

Some farms supplied both Karro and Cranswick during ECPS and have been included in both sets of figures.



Both ECPS and the Covid-19 scheme give an insight into Cranswick's supply chain. The map above and table left covers the ECPS while the table below details Covid-19. In both, County Down holds the most Cranswick suppliers at 31, followed by Tyrone (27 EPCS and 30 CV-19). Antrim and Armagh alternate for third and fourth place, Armagh has 13 in both while Antrim increases from 10 to 15. Derry/Londonderry has 9 and Fermanagh 0 in both scenarios. The postcode district breakdown is almost identical in both cases - showing denser clusters in South East Tyrone, Mid-Armagh and South Down.

County	Covid-19 2020	ECPS 2022
Antrim	15	10
Armagh	13	13
Derry/Londonderry	9	9
Down	31	31
Tyrone	30	27
Fermanagh	0	0



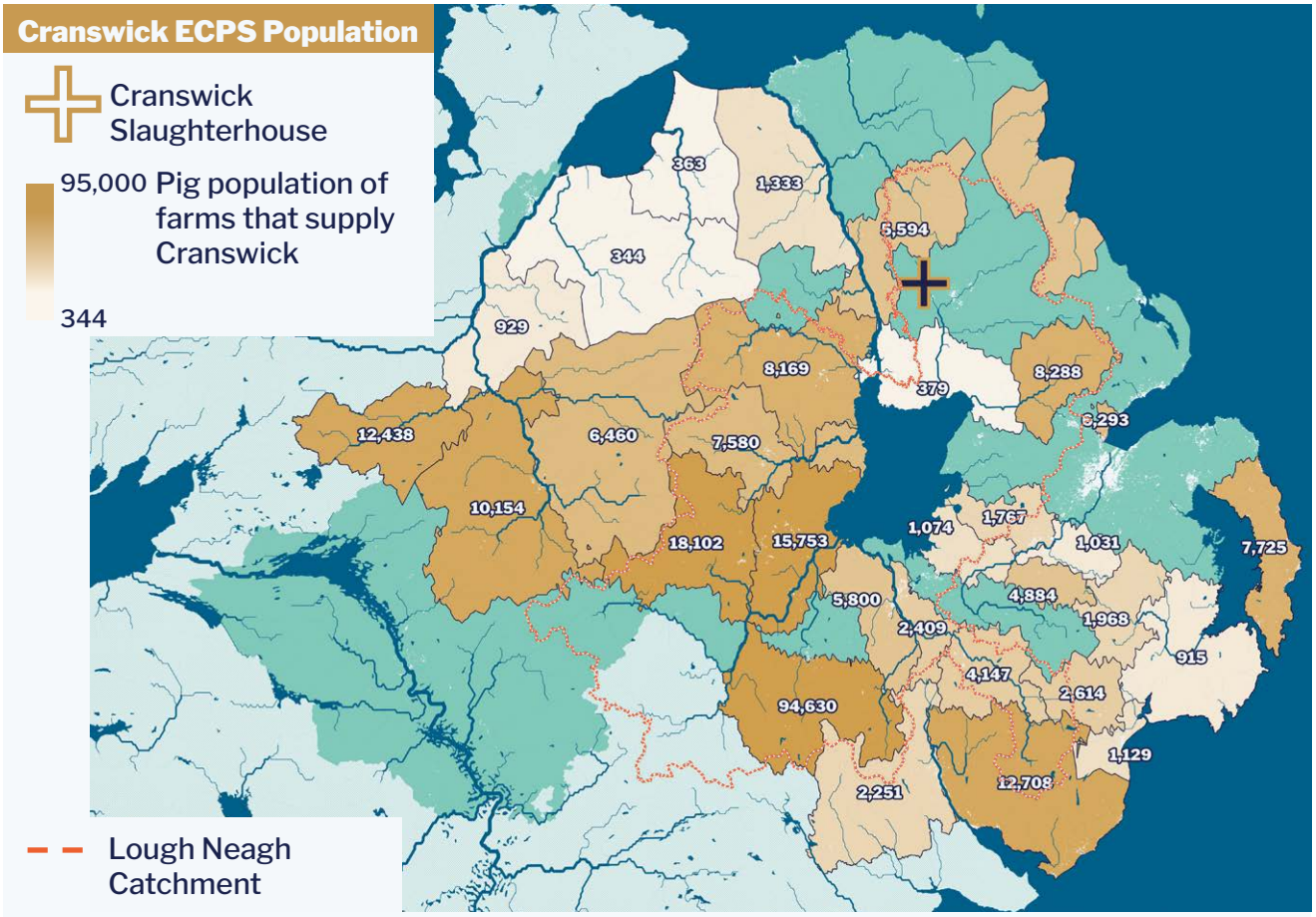
Postcode	Total ECPS 2022 Pig Population
BT60	95,189
BT76	51,341
BT71	27,225
BT70	20,498
BT80	19,399

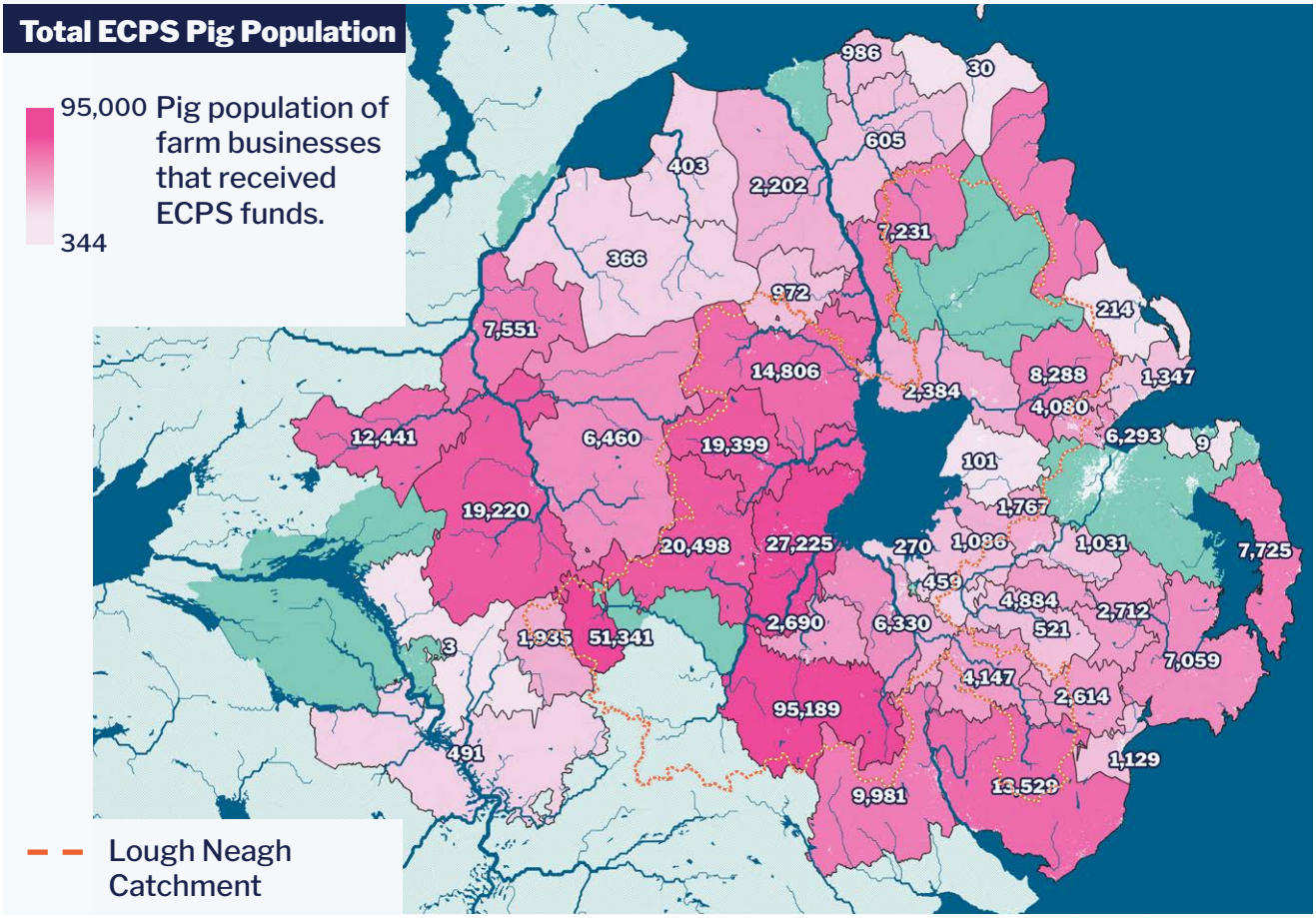
The charts on this page map the pig population disclosed by DAERA, by postcode district, of farms that successfully recieved compensation during the ECPS scheme. For more detail on the compensation schemes covered on this spread and the previous spread, please see pages 28 to 29.

Postcode	Karro ECPS 2022 Pig Population
BT60	88,129
BT76	51,341
BT71	19,759
BT70	16,771
BT80	15,990

Postcode	Cranswick ECPS 2022 Pig Population
BT60	94,630
BT70	18,102
BT71	15,753
BT34	12,708
BT81	12,438

Some farms supplied both Karro and Cranswick during ECPS and have been included in both sets of figures.


Cranswick ECPS Population
Cranswick Slaughterhouse
95,000 Pig population of farms that supply Cranswick
344
Lough Neagh Catchment
363
1,333
5,594
344
929
8,169
379
8,288
6,293
12,438
6,460
7,580
10,154
1,074
1,767
18,102
15,753
1,031
7,725
5,800
4,884
2,409
1,968
915
4,147
2,614
94,630
1,129
12,708
2,251


Total ECPS Pig Population
95,000 Pig population of farm businesses that received ECPS funds.
344
Lough Neagh Catchment
986
30
605
403
2,202
7,231
366
972
214
7,551
14,806
8,288
1,347
2,384
4,080
12,441
6,460
19,399
6,293
9
101
19,220
1,767
20,498
27,225
270
1,086
1,031
7,725
453
4,884
2,712
2,690
6,330
521
1,935
51,341
3
7,059
4,147
2,614
95,189
491
1,129
9,981
13,529

Geographic Map Sources:

Lough Neagh Algae Bloom Satellite Image (Copernicus 2023)
Lough Neagh (DAERA 2023b)
Lough Neagh Catchment Reference Map (DAERA and NIEA 2024)
Reference map re-created using (National River Flow Archive 2014; OpenDataNI 2025)
Neagh Bann River Basin (DAERA 2023c)
Rivers (Lehner and Grill 2013)
Lakes (Messager et al. 2016)
Northern Ireland Place Names (OSNI 2025)
Northern Ireland Counties (OpenDataNI 2024)
Republic of Ireland Counties (Tailte Eireann 2024)
Urban Areas (UKCEH 2021)

Images:
Portraits (Richter 2013; PersonaGirlfiend 2024; Sinn Féin 2022)

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Appendix:

Tables with monetary sales value from DAERA Food and Drinks reports (£m).

Redacted data made it difficult to calculate an exact proportion of sales from poultrymeat, pigmeat and eggs. The proportion of value derived from sales outside of NI has been calculated by the total sales value minus NI sales value. (DAERA and NISRA 2014c, 2022a)

Sub-sector (2012)	NI Sales	GB Sales	ROI Sales	REU Sales	ROW Sales	Total Sales
Eggs	23.3	70.8	18.5	0	0	112.6
Poultry meat	211.4	348.3	91.5	Redacted	Redacted	670.5
Pig meat	94.4	135.2	48.7	Redacted	Redacted	299.8

Sub-sector (2022)	NI Sales	GB Sales	ROI Sales	REU Sales	ROW Sales	Total Sales
Eggs	56.5	180.6	9.8	Redacted	Redacted	247.1
Poultry meat	Redacted	Redacted	Redacted	Redacted	Redacted	739.9
Pig meat	87.6	Redacted	46.8	9.2	Redacted	528.3

Regulator responses to the question of how many long term surveillance sites are in Lough Corrib, Lake Windermere and Llyn Tegid under the Water Framework Directive:

Environmental Protection Agency on Lough Corrib:

- "Lough Corrib is split into two Waterbodies from a monitoring perspective, Upper and Lower. Both are designated as surveillance lakes.
- Corrib (Lower) has 6 sites which are monitored for a variety of chemical parameters 4-12 times annually. Additionally, priority substances may be assessed at one site monthly, for one year in 6.
- Corrib (Upper) has 8 sites which are monitored for a variety of chemical parameters 4-12 times annually. Additionally, priority substances may be assessed at one site monthly, for one year in 6.
- Biological monitoring occurs on a 3-year cycle and may involve different sites." (EPA 2026)"

The Environment Agency on Lake Windermere:

- "Windermere's north basin has 6 surveillance sites listed and the south basin has 5. Each site monitors a different element for the Water

"Framework Directive (WFD) e.g physico-chemical, macrophytes, diatoms, CPET - Chironomid Pupal Exuviate Technique etc. "CPET involves using the presence/absence of non-biting midge larvae as an indicator of ecosystem health.

- "The Environment Agency has been carrying out a range of monitoring in Windermere for decades before WFD. This, along with other science and research, makes it one of the most monitored lakes in the UK.
- Regarding the physico-chemical element for WFD, both basins have been sampled monthly since April 2007 (when WFD sampling began). There was a small gap in data in 2020 due to the COVID-19 pandemic and occasional other gaps due to other limitations.
- WFD classifications are produced every 3 years. The 2025 classifications are expected to be made available to the public soon. While challenges remain, the overall picture for Windermere is one of improvement in a number of areas, reflecting the work being done by the EA and its partners to address pressures on the lake.
- The Environment Agency manages 7 sondes in rivers in the Windermere catchment. Sondes provide excellent real-time data which can be used to identify trends; however, as field-based equipment they do not produce data accurate enough to be included in WFD classifications.
- The EA's monitoring programme extends well beyond WFD requirements, with multiple other water chemistry sample points in Windermere that are not used for WFD. This broader monitoring helps build a comprehensive picture of the health of Windermere and its catchment, informing evidence-based decisions on interventions and improvements.
- For further information, please see Windermere (S Basin) | Catchment Data Explorer | Catchment Data Explorer and Windermere (N Basin) | Catchment Data Explorer | Catchment Data Explorer." (EA 2026)

Natural Resources Wales on Bala Lake (Llyn Tegid):

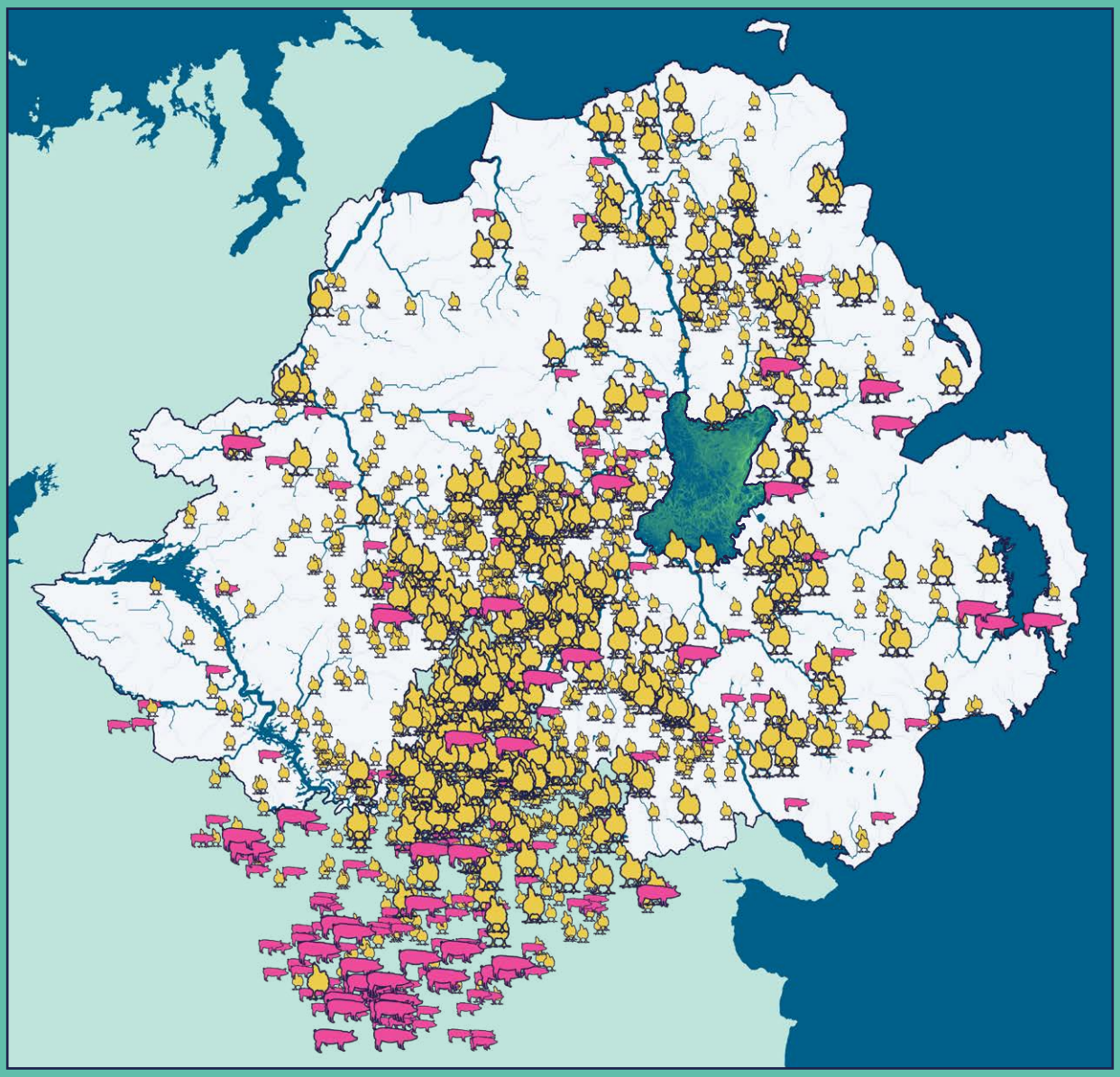
- "There are 2 fixed sites – one where water quality and phytoplankton is sampled, and one for the lake depth profiles."
- "Monitoring at Llyn Tegid (Lake Bala) is not limited to one or two fixed sites. Instead, locations vary depending on what is being measured. Water quality samples are taken from a long-term shoreline site, while dissolved oxygen is assessed through depth profiling at the deepest part of the lake. Ecological monitoring is also carried out at a range of locations across the lake, depending on the element being assessed. For example, invertebrates and diatoms are sampled at the same location, whereas chironomids, phytoplankton and aquatic plants are each monitored at different sites. This approach ensures we collect robust and representative data, rather than relying on a single monitoring point."
- "We carry out long-term monitoring at Llyn Tegid (Lake Bala) in line with the Water Framework Directive (WFD) and Habitats Directive. Our main water quality monitoring site has been in place since 2012 on the lake shore of Llyn Tegid , and previous to this, we monitored at the lake outlet since 1997. Last samples were taken on 20 April 2026 and the next are due in May. We also record dissolved oxygen from vertical depth profile monitoring data. This began in 2007. The last monitoring of this was in 2023 and a further depth profile survey is due in August/September 2026."
- "Ecological monitoring has been ongoing since 1998. This includes

"sampling phytoplankton (a plant like organism), chironomid (insect), invertebrate, and diatom (algae) monitoring, all undertaken last in 2024 and due next in 2027. We also undertake macrophyte (aquatic plant) surveys, this last took place in 2023.

- Together, this programme provides us with a robust evidence base to
- assess the water and ecological health of the Lake." (NRW 2026)

DAERA on Lough Neagh:

- "Since 2006, Lough Neagh has been surveyed by the Department, in line with the requirements of the Water Framework Directive (WFD).
- In addition, there are 15 WFD biological surveillance sites distributed around the Lough. The Department monitor these sites for macrophytes and diatoms on a rolling three-year survey cycle.
- There is one long-term WFD chemical surveillance site located at the Lower Bann at Toome. At this site, samples are collected monthly for chemical analysis and for phytoplankton analysis every July, August and September.
- In addition, there are 15 WFD biological surveillance sites distributed around the Lough. The Department monitor these sites for macrophytes and diatoms on a rolling three-year survey cycle."



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