# A compendium of food chain statistics for the island of Ireland

Prepared for *safe*food

July 2020

# A compendium of food chain statistics for the Island of Ireland

# Foreword

The promotion of good food safety behaviours throughout the food chain is reliant on a scientifically robust and accurate evidence base. This not only includes information on consumer behaviour and preferences in regard to the foods they eat, but also accurate statistics on food production, trade and economics, and information on food product recalls, food-borne illness, the impact of external influences such as climate change, and the extent and nature of food fraud. A broad spectrum of public and private sector organisations are involved in the generation of this data which remains fragmented and in many cases difficult to access. In both jurisdictions, there are a number of agencies and bodies responsible for collecting and collating agri-food statistics, while statistical data pertaining to Northern Ireland is frequently amalgamated with data from mainland Britain to present UK-wide statistical data as a whole.

The potential for divergence in agricultural and food policy between the UK (including Northern Ireland) and the European Union (including the Republic of Ireland) has meant that the ability to source reliable statistics on the food chain in both jurisdictions on the island of Ireland is taking on a new importance, especially for organisations who operate in both jurisdictions. This includes *safe*food, the Food Safety Promotion Board, whose key and primary function is the promotion of good food safety behaviours across the whole food chain. Currently, both food safety regimes are harmonised under EU-based agri-food policy and legislation. The potential divergence of the UK from this will present new challenges for many stakeholders for whom a comprehensive and accessible resource on up-to-date food chain statistics would be of immense benefit.

It is in this context that *safe*food commissioned this project to generate a compendium of the most up-to-date food chain statistics for both the Republic and Northern Ireland.  The compendium is in a format that can be updated on an annual basis, and supplemented with trend data where feasible. The data has already been published from a variety of other sources (referenced) to which the reader should refer if they require greater context or a broader perspective of the overall issues.

*safe*food wishes to thank the Principal Researcher on this project, Dr Karen Clarke, Director with Ipsos MORI in Belfast, Northern Ireland, and her colleagues, particularly Dr Sinéad Furey of the Ulster University Business School, who worked on this project.

## Glossary

| | |
|---|---|
| ASSAP | Agricultural Sustainability Support & Advisory Programme |
| AI | Artificial Intelligence |
| BMW | Biodegradable Municipal Waste |
| CSO | Central Statistics Office |
| CCFs | Childcare Facilities |
| COICOP | Classification of Individual Consumption According to Purpose |
| CCC | Committee on Climate Change |
| CAGR | Compound Annual Growth Rate |
| CPI | Consumer Price Index |
| CIR | Crude Incidence Rate |
| DAERA | Department of Agriculture, Environment and Rural Affairs |
| DEFRA | Department for Environment, Food & Rural Affairs (Northern Ireland) |
| DHPLG | Department of Housing, Planning and Local Government |
| DOH | Department for Health (Northern Ireland) |
| EBI | Economic Breeding Index |
| ECM | Energy Corrected Milk |
| EFTA | European Free Trade Association |
| EU-SILC | EU Survey on Income and Living Conditions |
| EU | European Union |
| EWC | European Waste Catalogue |
| FYE | Financial year ending |
| FDF | Food and Drink Federation |
| FEFAC | European Feed Manufacturers' Federation |
| FSAI | Food Safety Authority Ireland |
| FSA | Food Standards Agency |
| FUSIONS | Food Use for Social Innovation by Optimising Food Waste Prevention Strategies |
| GB | Great Britain |
| GFSI | Global Food Security Index |
| GHI | Global Hunger Index |
| GFI | Good Food Institute |
| GoCo | Government Owned Company |
| GHG | Green House Gas |
| HACCP | Hazard analysis and critical control point |
| HICP | Harmonised Index of Consumer Prices |
| HPSC | Health Protection Surveillance Centre |
| HSE | Health Service Executive |
| HMRC | Her Majesty's Revenue and Customs |

| | |
|---|---|
| HFSSM | Household Food Security Survey Module |
| I-SEM | Integrated Single Electricity Market |
| IoI | Island of Ireland |
| LULUCF | Land use, land use change and forestry |
| LCF | Living Costs and Food Survey |
| LA | Local authority |
| MESL | Minimal Essential Standard of Living |
| NPD | New Product Development |
| NI | Northern Ireland |
| NICCAP | Northern Ireland Climate Change Adaptation Programme |
| NIFDA | Northern Ireland Food & Drink Association |
| NIGTA | Northern Ireland Grain Trade Association |
| NMVOC | Non-Methane Volatile Organic Compound |
| PHA | Public Health Agency (Northern Ireland) |
| Pobal HP Index) | Pobal Haase-Pratschke Deprivation Index |
| RASFF | Rapid Alert System for Food and Feed |
| RED II | Renewable Energy Directive |
| RoI | Republic of Ireland |
| ROW | Rest of the World |
| STEC | Shiga toxin-producing E. coli |
| SKU | Stock-Keeping Unit |
| SACs | Special Areas of Conservation |
| SILC | Survey on Income and Living Conditions |
| SEAI | Sustainable Energy Authority of Ireland |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USDA | United States Department of Agriculture |
| UAA | Utilised Agricultural Area |
| VTEC | Verocytotoxin-producing E. coli |
| WHO | World Health Organisation |
| WRAP | Waste and Resources Action Programme |
| YTD | Year-to-date |

# Contents

# Background and Summary

The objective of this assignment is to provide an overview of the available data on the agri-food sector across the Island of Ireland. Specifically *safe*food required accurate statistics on food production, trade and economics, and information on food product recalls, food-borne illness, the impact of external influences such as climate change, and the extent and nature of food fraud, across the Island of Ireland (IoI).

The ability to source reliable statistics on the food chain in both jurisdictions on the IoI is becoming increasingly important with the advent of Brexit, especially for organisations who operate in both jurisdictions (such as *safe*food, the Food Safety Promotion Board) whose key and primary function is the promotion of good food safety behaviours across the whole food chain. Currently, both food safety regimes are harmonised under EU-based agri-food policy and legislation. The potential divergence of the UK from this will present new challenges for many stakeholders for whom a comprehensive and accessible resource on up-to-date food chain statistics would be of immense benefit.

This study focused primarily on published statistics from reputable sources such as official statistics in both jurisdictions (the Northern Ireland Statistics and Research Agency and the Central Statistics Office). There are a number of limitations to this study that should be highlighted. Firstly, not all data is collected in the same way or uses the same definitions in the Republic of Ireland (RoI) and Northern Ireland (NI). Therefore, although in some cases the data may appear similar it was not always possible to provide an all-island overview. Secondly, it was not always possible to get standalone data for NI. In some instances where UK data available it was not possible to robustly extrapolate the NI element from the overall UK dataset. Where available, data is presented in five years trends.

| Key Findings | Detail |
|---|---|
| Employment in the Agrifood sector | 40,000 (NI); 173,000 (RoI); 213,000 (IoI) |
| Contribution to the economy | 1.4% GVA (NI); 1.5% GVA (RoI); €530.5 million (IoI) |
| Agrifood imports & exports | £4,905M exports & £1.5Bn imports (NI) €13.6Bn exports & €9.7Bn imports (RoI) |
| Average family expendityre on food | £120 per week (NI); €128 per week (RoI) |
| Niche markets | Free-from markets increasing steadily across the IoI 8% vegetarian & 3.5% vegan across the IoI |
| Greenhouse gas emissions | Agrifood sector responsible for 34% of emission (RoI) and 27% of emissions (NI) |
| Foodbourne illness rates per 100K population | Salmonella 6.6 (NI) & 7.9 (RoI) Listeria 0.1 (NI) & 0.29 (RoI) |

# 1 The Economics of Food Production

## 1.1 Introduction

Agriculture and food processing form a significant element to the economy in both Northern Ireland (NI) and the Republic of Ireland (RoI). This chapter provides an overview of the key statistics relating to the economic contribution of the wider food chain on the Island of Ireland (IoI), this includes the number of jobs supported, the value of the sector to the economy (Gross Value Added) and the value of exports and imports in the sector.

## 1.2 General Economic Data

### 1.2.1 Gross Value Added

Gross Value Added (GVA) is a measure of the value of goods and services produced by an industry or sector and therefore the contribution to the overall economy minus costs, such as raw materials. The agricultural sector accounted for around 1.4% of the economy in NI (2018) and 1.5% in the RoI (2018)[1], compared to 0.5% in Great Britain (GB, 2018).

### 1.2.2 Agriculture

The GVA of the agricultural sector in both jurisdictions fluctuates annually (Table 1.1) and can be affected by a number of factors such as weather, exchange rates and global stocks[2]. However, as set out above, between 2013 and 2018 on average the agricultural sector contributed £475m to the NI economy and €3,744m to the RoI economy annually.

---

[1] https://www.cso.ie/en/releasesandpublications/ep/p-naova/outputandvalueaddedbyactivity2018/introduction
[2] DEFRA, 2020. Total Income from Farming in the United Kingdom, first estimate for 2019.

Table 1.1: Gross Value Added of the Agricultural sector in Northern Ireland and the Republic of Ireland

|  | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| NI £'m | 445 | 450 | 351 | 410 | 644 | 553 |
| RoI €'m[3] | 3,815 | 4,189 | 2,297 | 4,093 | 3,444 | 4,624 |

Sources: DAERA Northern Ireland Agri-food Key Statistics; DAERA Northern Ireland Agri-Food Sector Key Statistics July 2019; Department for Agriculture, Food and the Marine (DAFM) Annual Review and Outlook for Agriculture Food and the Marine 2018

In order to understand the contribution of agriculture to the economy on the IoI an exchange rate of £1 = €1.32 was applied based on average rates between 2012 and 2017[4] (Table 1.2).

Table 1.2: Agriculture Gross Value Added for the Island of Ireland

|  | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| NI £'m | 395 | 548 | 554 | 554 | 505 | 793 | 681 |
| RoI €'m | 3,635 | 3,815 | 4,189 | 2,297 | 4,093 | 3,444 | 4,624 |
| IoI €'m | 4,030 | 4,363 | 4,743 | 2,851 | 4,598 | 4,237 | 5,305 |

Therefore, in 2018 GVA from Agriculture, Forestry and Fishing to the economy across the IoI was in the region of €5,305m.

### 1.2.3 Employment

Data from the Central Statistics Office (CSO) and the Northern Ireland Statistics and Research Agency (NISRA) noted that in 2018 there were in the region of 213,000 people employed in the agri-food sector on the IoI as broken down in the following charts[5]. Employment within the agri-food sector accounts for 2.8% of all employment in NI[6] and 7.7% in RoI[7] (Table 1.3).

---

[3] Due to National Accounting principles, GVA figures do not include Direct Subsidy Receipts
[4] OFX website.
[5] The Department of Agriculture, Environment and Rural Affairs (DEARA) note that agricultural manpower statistics refer to the count of employees and self-employed workers in agriculture, as used by the Department of Economy in aggregate labour statistics. The count of self-employed includes farmers and partners who work full-time on their farms; the count of employees includes all other workers except part-time farmers and partners and farmers' spouses.
[6] DAERA, 2019. Northern Ireland Agri-Food Sector Key Statistics.
[7] DAFM, 2018. Fact Sheet on Irish Agriculture.

Table 1.3: Employment in the agri-food sector on the Island of Ireland

| Year | RoI[8] | | NI[9] | | IoI |
|---|---|---|---|---|---|
| | Employment numbers | % of all employment | Employment numbers | % of all employment | Employment total |
| 2018 | 173,000 | 7.7 | 40,000 | 4.6 | 213,000 |
| 2017 | 174,400 | 7.9 | 37,000 | 4.4 | 211,400 |
| 2016 | 173,400 | 8.6 | 40,000 | 4.7 | 213,400 |
| 2015 | 165,700 | 8.4 | 44,000 | 5.5 | 209,700 |
| 2014 | 163,000 | 8.4 | 47,000 | 5.7 | 210,000 |
| Average | 169,900 | 8.2 | 41,600 | 4.98 | 211,500 |

Sources: DAFM Annual Review and Outlook for Agriculture Food and the Marine 2018; DAERA Northern Ireland Agri-food Key Statistics

## 1.3 Trade and Export overview

The following paragraphs provide an overview of the key datasets on agri-food imports and exports in Ireland.

### 1.3.1 Northern Ireland

In 2017 the total value of agri-food exports from NI was £4,905M, rising from £4,607M in 2013 (Table 1.4). GB was the main destination for sales from the NI food and drinks processing sector. The RoI is the largest export market. Exports from RoI and other European Union (EU) countries account for 22.6% of NI's food and drinks processing sector sales. The Rest of the World (RoW) accounts for 2.8 per cent of the sector's total sales, as detailed below[10].

---

[8] Fact Sheet on Irish Agriculture 2019, 2018, 2017, 2016, 2015.
[9] DAERA, 2020. Northern Ireland Agri-Food Key Statistics.
[10] DAERA, 2017. Statistical Review of Northern Ireland Agriculture.

Table 1.4: Food Exports Sales from Northern Ireland[11]

| | 2013 £Ms | | 2014 £Ms | | 2015 £Ms | | 2016 £Ms | | 2017 £Ms | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Outside NI | Outside UK | Outside NI | Outside UK | Outside NI | Outside UK | Outside NI | Outside UK | Outside NI | Outside UK |
| Animal by-products | ** | 22.0 | ** | ** | ** | ** | ** | ** | ** | ** |
| Bakeries | 131.5 | 74.0 | 129.3 | 75.2 | 129.0 | 76.1 | 152.4 | 92.7 | 165.0 | 98.8 |
| Beef & sheepmeat | 1016.8 | 241.1 | 1021.0 | 241.6 | 1053.4 | 234.8 | 1035.3 | 220.5 | 1150.8 | 223.3 |
| Drinks | 237.3 | 194.6 | 227.3 | 179.0 | 211.6 | 168.2 | 216.9 | 182.2 | 228.2 | 195.3 |
| Eggs | 91.0 | 13.4 | 94.0 | 12.7 | 97.3 | 12.9 | 105.8 | 13.0 | 118.9 | 12.9 |
| Fish | 66.2 | 32.0 | 64.1 | 30.0 | 64.4 | 30.5 | 66.9 | 31.1 | 80.4 | 34.8 |
| Fruit & vegetables | 191.0 | 57.2 | 199.8 | 60.8 | 205.3 | 51.4 | 217.9 | 55.7 | 223.3 | 63.6 |
| Milk & milk products | 703.0 | 480.7 | 707.6 | 462.2 | 643.5 | 380.5 | 632.5 | 309.4 | 776.3 | ** |
| Pig meat | 191.9 | 71.6 | 189.1 | 83.6 | 180.8 | 79.2 | 192.8 | 71.2 | 201.4 | 90.3 |
| Poultry meat | ** | 131.4 | ** | ** | ** | ** | ** | ** | ** | ** |
| Totals | 3,289.2 | 1,318.1 | 3,322.1 | 1,298.8 | 3,277.3 | 1,178.2 | 3,287.1 | 1,099.0 | 3,641.1 | 1,264.0 |

** data has been suppressed due to data disclosure issues in both these subsectors in line with the UK National Statistics code of practice.

---

[11] DAERA, 2020. Size and performance of the NI food and drinks processing sector.

The latest available data (from 2018) relating to food and drink processing sector exports from NI shows that Northern Irish businesses conducted most international trade with RoI, accounting for around 15% of exports and 33% of imports[12].  Food and live animals represented around 33% of the total NI exports going to the ROI, of which the top subcategory was milk and cream products.  The data also shows that the rest of the UK remains NI's biggest single agri-food market (Table 1.5).

Table 1.5: Value of Northern Ireland Food and live animal exports (£'000s).

|  | Outside NI | Outside UK |
|---|---|---|
| 2018 | 3987 | 1369 |
| 2017 | 3639 | 1260 |
| 2016 | 3287 | 1099 |
| 2015 | 3277 | 1178 |
| 2014 | 3322 | 1298 |

NB: These figures do not include an estimate of the turnover of food and drinks processing businesses with turnovers less than £250,000[13].

## 1.3.2 Northern Ireland agri-food imports

As shown in the Table 1.6, the value of food exported has been gradually increasing and in 2018 the total value of food and live animals exported from NI to ROI was roughly the same as the value of from (£1,510M), as set out below. The HMRC Regional Trade data also highlights that food and live animals account for around 20% of all goods imported to NI.

Table 1.6: Top Partner country for Food imports and exports to Northern Ireland

| Country | 2018 | | 2019 | |
|---|---|---|---|---|
|  | Value of imports | Value of Exports | Value of imports | Value of exports |
| Ireland | £898M | £1Bn | £1.5Bn | £1.5Bn |
| Netherlands | £194.2M | £91.5M | £169.9M | £77.8M |
| France | £63M | £27M | £30.2M | £72.1M |
| Belgium | £37.1M | £60.9M | £33.2M | £64.4M |
| Germany | £83.1M | £35.9M | £89.9M | £23.9M |

Source:  UK Regions Imports and Exports of Goods by Country and World Region
https://uktradeingoodsmap.nisra.gov.uk/?reporter=NI&partner=IE&commodity=0&year=2018

---

[12] Office for National Statistics (ONS), 2018. Patterns of NI trade by Destination, Product and business Characteristics (2012 – 2016).
[13] DAERA. Size and performance of NI food and drinks processing sector, 2018 (published July 2020)

### 1.3.3 Republic of Ireland

Agri-food exports from the RoI totalled €13.7 billion in 2018.  The food and drink sector accounted for 39.5% of all export sales[14].  The agri-food sector includes primary production, (agriculture, fishing and forestry), food & beverages and the wood processing sector.  It includes traditional food products such as beef, dairy and beverages; along with non-edible items such as animal foodstuffs, forestry, and animal hides and skins.

The total value of food and drink exported from RoI in 2019 was €13,436M (Table 1.7).  Meat and meat preparations accounted for almost one third (28.8%) of food and drinks exports and dairy products accounted for almost one quarter (22.6%) of all exports.  Cereals, and vegetables & fruit were the most commonly imported foods accounting for 14.8% and 15.5% of all food imports in 2019, respectively[15].

---

[14] Annual Review and Outlook for Agriculture, Food and the Marine (2018).  Department of Agriculture, Food and the Marine
[15] Annual Review and Outlook for Agriculture, Food and the Marine (2019).  Department of Agriculture, Food and the Marine

Table 1.7: Food and Drink Exports and Imports (Republic of Ireland)

| | Export €'Ms | | | | | Imports €'Ms | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Live animals | 436 | 340 | 448 | 440 | 458 | 316 | 284 | 303 | 262 | 319 |
| Meat & meat preparations | 3,482 | 3,596 | 3,846 | 3,939 | 3,870 | 958 | 956 | 983 | 1,028 | 1,017 |
| Dairy products & birds' eggs | 1,789 | 1,760 | 2,393 | 2,609 | 3,036 | 695 | 611 | 785 | 840 | 871 |
| Fish, crustaceans, molluscs & preparations thereof | 564 | 555 | 617 | 576 | 575 | 259 | 263 | 291 | 290 | 309 |
| Cereals & cereal preparations | 399 | 381 | 419 | 440 | 536 | 1,014 | 1,049 | 1,103 | 1,277 | 1,304 |
| Vegetables and fruit | 287 | 278 | 299 | 321 | 315 | 1,156 | 1,211 | 1,252 | 1,334 | 1,362 |
| Sugars, sugar preparations & honey | 163 | 212 | 157 | 147 | 152 | 374 | 369 | 377 | 360 | 382 |
| Coffee, tea, cocoa, spices & manufactures thereof | 370 | 374 | 374 | 385 | 413 | 543 | 569 | 595 | 614 | 659 |
| Animal feeding stuffs (excl. unmilled cereals) | 295 | 283 | 320 | 346 | 366 | 779 | 741 | 780 | 1,064 | 898 |
| Miscellaneous edible products & preparations | 2,068 | 2,317 | 2,502 | 1,975 | 2,002 | 564 | 636 | 714 | 736 | 757 |
| **Total food** | **9,853** | **10,096** | **11,375** | **11,178** | **11,724** | **6,659** | **6,689** | **7,183** | **7,805** | **7,877** |
| Beverages | 1,242 | 1,298 | 1,358 | 1,443 | 1,712 | 785 | 833 | 822 | 861 | 910 |
| **Total food & drink** | **11,095** | **11,394** | **12,732** | **12,621** | **13,436** | **7444** | **7,522** | **8,005** | **8,666** | **8,787** |

Source: CSO, Ireland's Trade in Goods 2018

As set out in Table 1.8, since 2015 the value of food and drink exported from the RoI has consistently been more than that of imported food and drink. In 2019 the value of food exported was €13,436M compared to €8,787M of imports.

Table 1.8: Value of food imports and exports: Republic of Ireland (€'000's)

|  | Export | Import |
|---|---|---|
| 2019 | 13,435,946 | 8,786,953 |
| 2018 | 12,620,825 | 8,665,621 |
| 2017 | 12,732,309 | 8,005,182 |
| 2016 | 11,394,332 | 7,522,380 |
| 2015 | 11,094,700 | 7,443,986 |

Source: CSO, Ireland's Trade in Goods 2017

The United Kingdom (UK) is the largest market for RoI exports with 46% of beef exports and 79% of poultry exports going to the UK (Great Britain and Northern Ireland). Table 1.9 provides an overview of the value of the top 15 agri-Food exports and imports by Category[16].

---

[16]DAFM, 2019. Brexit Fact Sheet, Irish Agri-Food Sector.

Table 1.9 Republic of Ireland agri-food Imports and exports to the United Kingdom, Great Britain and Northern Ireland (2017)

| | Exports €000's | | | Imports €000's | | |
|---|---|---|---|---|---|---|
| | GB | NI | UK | GB | NI | UK |
| Beef | 1,048,822 | 118,697 | 1,167,519 | 91,488 | 12,116 | 103,604 |
| Dairy | 904,363 | 91,891 | 996,254 | 325,082 | 243,477 | 568,559 |
| Pigmeat | 401,936 | 43,888 | 445,824 | 136,828 | 7,297 | 144,125 |
| Cereals | 293,037 | 79,949 | 372,986 | 593,308 | 65.290 | 658,598 |
| Beverages | 215,166 | 77,742 | 292,908 | 276,930 | 67,703 | 344,633 |
| Live Animals | 247,229 | 81,952 | 329,181 | 235,290 | 8,490 | 243,780 |
| Fruit & Vegetables | 203,299 | 46,985 | 250,285 | 357,253 | 83,276 | 440,529 |
| Poultry | 195,191 | 25,172 | 220,363 | 144,692 | 21,043 | 165,735 |
| Animal Foodstuffs | 161,175 | 73,073 | 234,248 | 154,617 | 113,245 | 267862 |
| Miscellaneous Edible Products & Preparations | 131,082 | 14,004 | 145,086 | 298,210 | 9,758 | 307,968 |
| Forestry | 110,198 | 41,899 | 152,098 | 41,180 | 15,074 | 56,254 |
| Fish | 50,781 | 9,264 | 60,045 | 166,517 | 17,747 | 184,264 |
| Sheepmeat | 55,692 | 392 | 56,084 | 22,560 | 107 | 22,667 |
| Other Meat & Meat produce | 41,422 | 2,926 | 45,348 | 16,376 | 735 | 17,110 |
| Other agri-food | 356,339 | 43,993 | 400,332 | 560,837 | 50,882 | 611,719 |
| **TOTAL** | **4,415,732** | **752,829** | **5,168,561** | **3,421,169** | **716,240** | **4,137,409** |

Due to the differences in the way data is collated across RoI and NI and the suppression of some data in NI, it is not possible to provide an all-island overview of imports and exports in the agri-food sector. However, a review of the data from both jurisdictions clearly indicates that exports from the agri-food sector is an important element of the economy across the IoI with at least £4,905M and €12,732M food exported in 2017 from NI and RoI respectively, equating to around €19,207M in total from the IoI[17].

### 1.3.4 Sources of imported food

As noted above the value of food imported to the RoI was in the region of €7.8 billion in 2018. The agri-food sector accounted for 11% of all imports to the RoI in 2018 with €9.7 billion of agri-food products imported[18]. Cereal and cereal preparations accounted for 13% of the value of agri-food imports and animal foodstuffs 11%. Table 1.10 sets out the proportionate value of food stuffs imported by category. Fruit and vegetables, cereals and beverages tended to be the most frequently imported food stuffs.

Table 1.10: Agri-food imports by category: Republic of Ireland

| Foodstuff category | % of value of all agri-food imports | | |
|---|---|---|---|
| | 2016 | 2017 | 2018 |
| Cereal & cereal preparations | 13% | 13% | 13% |
| Animal Foodstuffs | 9% | 9% | 11% |
| Dairy Produce | 8% | 10% | 10% |
| Beverages | 10% | 9% | 9% |
| Fruit & vegetables | 15% | 14% | 9% |
| Fruit & vegetable based products | ** | ** | 5% |
| Miscellaneous edible products & preparation | 7% | 7% | 6% |
| Coffee, tea, cocoa & spices | 7% | 7% | 6% |
| Poultry | 5% | 5% | 5% |
| Other | | 38% | 26% |
| **Total Value of agri-food imports** | **€8.2Bn** | **€8.7Bn** | **€9.7Bn** |

** data requested from CSO

In 2018, agri-food goods were imported into the RoI from over 180 countries worldwide. The top five import sources were the UK, Netherlands, Germany, France and the United States, which accounted

---

[17] Based on an average exchange rate of €1.32.
[18] DAFM, 2019. Annual Review and Outlook for Agriculture, Food and the Marine.

for 73% of Ireland's total imports for that year.  Table 1.11 sets out the main sources of food imports to RoI.

Table 1.11: Source of imported Agri-foods goods: Republic of Ireland

| Country of origin | 2017 | 2018 |
|---|---|---|
| | % of total agri-food imports | |
| United Kingdom | 47% | 46% |
| Netherlands | 10% | 9% |
| Germany | 7% | 7% |
| France | 5% | 5% |
| United States | 3% | 4% |
| Spain | 3% | 3% |
| Belgium | 3% | 2% |
| Argentina | 2% | 2% |
| Canada | n/a | 2% |
| Italy | 2% | 2% |
| Poland | 2% | |
| Other | 16% | 18% |

Source: CSO, *Output, Input and Income in Agriculture, 2019 estimates (published December 2019).*

## 1.4 Food Prices and Consumer Expenditure

### 1.4.1 Introduction

The following chapter provides an overview of the available data relating to the price of food and consumer expenditure on food and drink for the RoI, NI and the IoI.  Data relating to expenditure by socio-economic class is also presented where available.

### 1.4.2 Commodity price data

A commodity is a tangible good that can be bought and sold or exchanged for products of similar value.  Like other classes of assets, commodities have value and can be traded globally on open markets.  And like other assets, commodities can fluctuate in price according to supply and demand. Agricultural commodities are staple crops and animals produced or raised on farms or plantations.

Droughts or disease in other countries cause shortages in production that can influence world commodity prices, impacting on the domestic market as well. The value of the Euro or Sterling against other currencies will also impact agricultural commodity prices on the IoI. Most agricultural commodities such as grains, livestock and dairy provide a source of food for people and animals across the globe[19]. Economic activity in the agri-food sector in RoI produces a higher return than that of other traded sectors as agri-food companies source approximately 74% of their raw materials and services from Irish suppliers[20].

### 1.4.3 Republic of Ireland

The Central Statistics Office (CSO) estimated that the operating surplus in agriculture[21] increased by over €800 million between 2016 and 2017 (around 31%). The value of goods output increased largely between 2016 and 2017 as a result of large increases in the value of milk output. Output from agriculture in RoI in 2017 is shown in Table 1.12.

Table 1.12: Output and Income in Agriculture 2017: Republic of Ireland

|  | Output % | Value of goods output (€) |
|---|---|---|
| **Milk** | 45% | €809m |
| **Cattle** | 3% | €72m |
| **Pigs** | 11% | €50m |
| **Sheep** | 3% | €7m |
| **Cereals** | 3% | €6m |
| **Goods output at producer prices** | +14% | €992m |

Source: Teagasc, Agriculture in Ireland

Eurostat have developed an interactive Food Price Monitoring Tool which tracks price trends along the food supply chain from farm to consumer in response to strong volatility of agricultural commodity and food prices towards the end of the last decade[22]. The tool provides data for prices relating to each component of the food supply chain – imports, agricultural sector, food processing sector and retail sector.

---

[19] http://www.commodity.com
[20] Teagasc (Agriculture and Food Development Authority) website.
[21] CSO Ireland: Net Operating Surplus = Gross Value Added at basic prices less (a) Compensation of Employees, (b) Consumption of Fixed Capital and (c) other subsidies less taxes on production
[22] https://ec.europa.eu/eurostat/cache/infographs/foodprice/index.html

Table 1.13 provides an overview of changes in agricultural commodity prices for food for RoI, the UK and the EU between 2015 and 2019 (NI-specific data is not available within this dataset). Month-on-month data can be accessed in the Food Price Monitoring Tool which will provide a more robust overview of price changes at successive stages.

Table 1.13: Agricultural commodity price index, September 2015 – September 2019 (Base year 2015=100)

| Region | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------|------|------|------|------|------|
| EU*[23] | 99.4 | 99.3 | 106.4 | 109.7 | **[24] |
| RoI | 97.4 | 95.4 | 108.6 | 104.6 | 100.0 |
| UK | 98.1 | 102.7 | 111.8 | 117.5 | 110.5 |

Source: Eurostat, Food Price Monitoring Tool

### 1.4.4 Northern Ireland

Table 1.14 shows agricultural indices on various producer prices in NI, including cattle, sheep, pigs, grains, milk and potatoes. The total products index is calculated by taking into account the significance of each item in the base period (2015).

[23] *European Union – 28 countries (2013-2020)
[24] **data not available

Table 1.14: Indices of producer prices of agricultural output in Northern Ireland, 2010-2019[25].

| | Weights | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Finished steers and heifers** | 221 | 78 | 90 | 97 | 109 | 101 | 100 | 98 | 107 | 107 | 100 |
| Culled cows and bulls** | 32 | 91 | 107 | 114 | 120 | 102 | 100 | 101 | 116 | 118 | 105 |
| Store cattle exported | 3 | 76 | 84 | 89 | 96 | 97 | 100 | 94 | 101 | 101 | 98 |
| Finished sheep and lambs | 48 | 109 | 121 | 107 | 114 | 112 | 100 | 114 | 117 | 125 | 113 |
| Finished clean pigs | 71 | 107 | 113 | 118 | 131 | 123 | 100 | 100 | 128 | 120 | 123 |
| Milk | 360 | 120 | 131 | 124 | 150 | 140 | 100 | 97 | 137 | 137 | 129 |
| Eggs for consumption | 26 | 87 | 91 | 107 | 98 | 96 | 100 | 100 | 97 | 92 | 87 |
| Broilers | 80 | 95 | 107 | 107 | 115 | 108 | 100 | 101 | 105 | 108 | 109 |
| Potatoes: Ware maincrop | 19 | 97 | 94 | 119 | 152 | 97 | 100 | 119 | 114 | 132 | 136 |
| Potatoes: Seed | 3 | 114 | 119 | 103 | 143 | 109 | 100 | 112 | 113 | 109 | 128 |
| Barley | 23 | 104 | 137 | 150 | 137 | 112 | 100 | 102 | 118 | 142 | 125 |
| Wheat | 5 | 112 | 141 | 149 | 144 | 115 | 100 | 101 | 118 | 134 | 128 |
| Mushrooms | 33 | 81 | 93 | 95 | 97 | 99 | 100 | 98 | 102 | 105 | 107 |
| Apples | 6 | 51 | 49 | 68 | 99 | 96 | 100 | 95 | 97 | 75 | 73 |
| Total products index[26] | 930 | 100 | 110 | 112 | 124 | 116 | 100 | 99 | 118 | 119 | 113 |
| Inputs index[27] | 1000 | 87 | 99 | 105 | 110 | 106 | 100 | 98 | 98 | 104 | 106 |

Source: DAERA, Indices of producer prices 1981 onwards (published April 2019).
* 2019 = provisional figures.
** Includes cattle slaughtered under the Over Thirty Months Scheme

---

[25] The indices relate to prices from which marketing expenses have not been deducted. Animals slaughtered under Foot and Mouth Disease control measures are not included

[26] The total products index is calculated by taking into account the significance of each item in the base period (2015). This is shown in the column of weights. Since only the main items of output are included, the total of their weights does not add to 1,000. Also, since the price index does not cover items such as production grants, compensation payments and gross fixed capital formation, it should not be regarded as a 'deflator' to be used in estimating the volume of output.

[27] This index does not cover all inputs. It comprises feedstuffs, seeds, fertilisers and lime, and marketing expenses.

### 1.4.5 Republic of Ireland

Table 1.15 provides an overview of the index of producer prices of agricultural products (the Output Price Index) between the years 2014 and 2017. Milk prices were 21.3% higher in 2017 compared to the base year (2015), while cattle prices fell by 5.3% over the same period. The agricultural Output Price Index increased by 11.9% in 2017 compared to the previous year.

Table 1.15: Agricultural Output Price Index 2014 – 2017: Republic of Ireland (Base year 2015=100)

|  | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| Cattle | 90.4 | 100.0 | 93.0 | 94.8 |
| Sheep | 98.8 | 100.0 | 99.9 | 99.6 |
| Pigs | 109.4 | 100.0 | 102.6 | 110.4 |
| Poultry | 101.2 | 100.0 | 99.5 | 99.2 |
| Milk | 128.6 | 100.0 | 91.0 | 121.3 |
| Cereals | 105.8 | 100.0 | 101.3 | 101.9 |
| Potatoes | 87.5 | 100.0 | 128.5 | 117.2 |
| Vegetables | 99.9 | 100.0 | 100.3 | 100.2 |
| Total outputs | 106.8 | 100.0 | 95.1 | 106.5 |

Source: CSO, Statistical Yearbook of Ireland 2018

Detailed information on the RoI food market reports can be accessed via the Irish Farmer's Association website[28]. Commodity reports and the latest prices for different commodities, such as cattle, can be accessed via the Irish Farmers Association[29,30].

---

[28] Irish Farmer's Association
[29] Commodity Reports https://www.ifa.ie/?s=food+market+reports+
[30] Latest prices for different commodities https://www.ifa.ie/sectors/cattle/

# 2 Animal Feed

## 2.1 Introduction

The value of livestock production – amounting to €172 billion – accounts for 39.6% of the overall EU-28 agricultural output amounting to €434 billion in 2018.  Animal feedstuffs, including feed materials and compound feeds, are the main input into livestock production[31].  Compound feed is fodder that is blended from various raw materials and additives.  These blends are formulated according to the specific requirements of the target animal.  They are manufactured by feed compounders as meal type, pellets or crumbles[32].  Typically, the main ingredients used in commercially prepared feed are the feed grains, which include corn, soybeans, sorghum, oats and barley.  Table 2.1 below shows the level of compound feed production in the UK and RoI between 2013 and 2018.

Table 2.1 Trend data on compound feed production (thousand tonnes) in the United Kingdom and Republic of Ireland, 2013-2018

|      | ROI  | UK    |
|------|------|-------|
| 2017 | 4366 | 16267 |
| 2016 | 4005 | 15635 |
| 2015 | 3988 | 15560 |
| 2014 | 3622 | 15645 |
| 2013 | 4377 | 15633 |

Source: FEFAC, Compound Feed Production, 2013-2018.

The remainder of this chapter provides statistics on animal feed production on the IoI.  Due to differences in data collection and monitoring of animal feedstuff, figures are presented separately for NI and the RoI.  The chapter covers:

- Feed manufactured per livestock species (NI and RoI)
- Animal feed deliveries (NI) and imports/exports (RoI)
- Raw materials for feedstuff manufacturing (NI only)
- Farmland usage (RoI only).

---

[31] European Feed Manufacturers' Federation (FEFAC), 2018. Feed & Food Statistical Yearbook 2018
[32] https://www.daerani.gov.uk/sites/default/files/publications/dard/Northern%20Ireland%20Animal%20Feed%20February%202020.pdf l

## 2.2 Northern Ireland statistics

Animal feed statistics are based on surveys and provide information on the quantities of feed used in NI on a monthly, quarterly and annual basis. According to DAERA, as of February 2020 there were 502 registered and 135 approved feed business operators' premises establishments in NI[33]. The accuracy of the survey results is very high because a review is carried out of all businesses and the typical response rate is 100% per year. The statistics are used by the NI government as evidence for assessing market conditions and evaluating agricultural policy. The latest national statistics on NI animal feed produced by DAERA were released in May 2020 according to the arrangements approved by the UK Statistics Authority. The data presented here represents the latest monthly or annual data, with 5-year and 10-year trends provided where applicable.

### 2.2.1 Animal feed production Northern Ireland

As shown in Table 2.2 below, total deliveries of compound and other processed animal feedstuff has increased since 2015. Despite some fluctuation in deliveries of cattle/calf animal feed, there have been overall increases in the cattle/calf, poultry and pig feed categories. According to the Northern Ireland Grain Trade Association (NIGTA), the animal feed industry has contributed to the growth in various livestock sectors[34]. The figure shows the total deliveries of animal feedstuff, while data later in the chapter shows the proportion of deliveries that go outside of NI.

Table 2.2: 10-year trend data on total deliveries of compound and other processed animal feedstuffs by Northern Ireland manufacturers, overall and by livestock species (thousand tonnes)

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Overall feed | 2013.1 | 2071.1 | 2085.6 | 2193.8 | 2316.3 | 2313.3 | 2253.7 | 2236.2 | 2446.2 | 2603.9 | 2497.9 |
| Cattle/calf | 1058.2 | 1087.2 | 1078.9 | 1190.7 | 1283.8 | 1211.3 | 1150.0 | 1133.4 | 1274.3 | 1348.6 | 1262.5 |
| Pig | 125.6 | 152.6 | 186.7 | 165.3 | 160.9 | 180.0 | 197.1 | 208.3 | 225.5 | 238.2 | 240.1 |
| Poultry | 665.4 | 680.6 | 691.8 | 692.7 | 709.8 | 778.9 | 770.3 | 754.4 | 798.1 | 865.4 | 851.1 |
| Sheep | 70.2 | 73.5 | 66.4 | 74.9 | 82.8 | 67.2 | 62.4 | 65.7 | 67.7 | 72.7 | 54.6 |
| Other | 93.7 | 77.2 | 61.8 | 70.2 | 79.1 | 75.9 | 74.0 | 74.5 | 80.7 | 78.9 | 89.7 |

Source: DAERA, 2020. Animal feed statistics data 2015-2019.

---

[33] DAERA, 2019. List of NI approved and registered feed business operator premises establishments. (Agri food inspection Branch (AfIB) is responsible for approving certain establishments using animal medicines or other specified feed additives and also implements a program of sampling and testing of feeds and feed ingredients. This document is the current list of approved establishments.)
[34] AgriLand, 2019. Northern Ireland's compound animal feed sector continues to grow.

The volume of deliveries of animal feed by NI manufacturers is highest at the beginning of the year, with a period of decline during the summer months and increase again in quarter 4. This pattern is broadly consistent year on year (Table 2.3), however volumes were generally lower in 2019 than in 2018, with the exception of July and October.

Table 2.3: Annual trend data on total deliveries of compound and other processed animal feedstuffs by Northern Ireland feedstuffs manufacturers (to the nearest thousand tonnes)

|  | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | 236 | 224 | 256 | 218 | 212 | 191 | 186 | 210 | 203 | 225 | 211 | 234 |
| 2018 | 255 | 218 | 218 | 200 | 208 | 172 | 195 | 180 | 182 | 236 | 210 | 216 |

Source: DAERA, 2020. Animal feed statistics data 2015-2019.

Table 2.4 shows the total deliveries of compound and other processed animal feedstuff by NI manufacturers in February 2020. Total deliveries have risen in the last 5 years with increases in animal feedstuffs for cattle/calf, pig and poultry contributing to this overall rise.

Table 2.4: Total deliveries of compound and other processed animal feedstuffs by Northern Ireland manufacturers, by livestock species (thousand tonnes)

| Animal feedstuff | Feb 2016 | Feb 2017 | Feb 2018 | Feb 2019 | Feb 2020 |
|---|---|---|---|---|---|
| Calf milk substitutes | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other calf compounds | 6.3 | 6.6 | 7.0 | 7.1 | 7.1 |
| Beef cattle compounds | 12.7 | 15.7 | 18.1 | 15.6 | 13.8 |
| Dairy cow compounds | 40.4 | 43.9 | 46.7 | 45.2 | 45.1 |
| All other cattle compounds | 0.5 | 0.5 | 0.6 | 0.7 | 0.6 |
| Beef – course mixes or blends | 20.9 | 22.3 | 26.7 | 24.5 | 23.5 |
| Dairy – coarse mixes or blends | 20.5 | 20.7 | 23.3 | 22.1 | 20.7 |
| Protein concentrates | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 |
| Total cattle and calf | 101.4 | 109.8 | 122.6 | 115.3 | 110.8 |
| Pig starter and creep feed | 1.2 | 1.8 | 2.3 | 2.2 | 2.9 |
| Pig link/early grower feed | 2.1 | 2.7 | 2.8 | 2.9 | 3.1 |
| Pig growing feed | 3.2 | 3.3 | 3.3 | 3.3 | 3.3 |
| Pig finishing feed | 7.0 | 7.3 | 7.2 | 7.3 | 9.2 |

| | | | | | |
|---|---|---|---|---|---|
| Pig breeding feed | 2.7 | 2.7 | 2.8 | 2.7 | 2.5 |
| Protein concentrates | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total pig | 16.2 | 17.8 | 18.2 | 18.4 | 21.1 |
| Chick rearing | 2.0 | 2.0 | 2.2 | 4.5 | 1.8 |
| Layer and breeder feed | 19.0 | 21.0 | 22.3 | 2.3 | 24.1 |
| Broiler feed | 32.3 | 34.5 | 36.6 | 1.9 | 36.1 |
| Turkey and other poultry feed | 3.4 | 3.3 | 2.9 | 0.0 | 2.6 |
| Total poultry | 56.7 | 60.7 | 63.8 | 67.7 | 64.6 |
| Breeding sheep compounds | 5.1 | 3.9 | 5.8 | 4.5 | 3.9 |
| Growing/finishing sheep compounds | 2.4 | 3.1 | 3.0 | 2.3 | 3.3 |
| Coarse mixes or blends | 2.1 | 1.9 | 2.6 | 1.9 | 2.1 |
| Protein concentrates | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total sheep | 9.5 | 8.9 | 11.4 | 8.7 | 9.4 |
| Flaked maize and maize meal | 4.9 | 4.9 | 6.0 | 4.8 | 4.2 |
| Flaked barley and barley meal | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 |
| Other | 1.9 | 2.0 | 1.9 | 3.6 | 3.6 |
| Total other | 7.0 | 7.1 | 8.1 | 8.7 | 8.1 |
| Total all feed | 190.7 | 204.3 | 224.2 | 218.8 | 213.9 |

Source: DAERA, 2020. Animal feed statistics, February 2020

### 2.2.2 Deliveries outside Northern Ireland

Table 2.5 shows the total deliveries of animal feed by NI manufacturers and the volume of deliveries outside of NI. The volume of total deliveries has increased since 2015, with a peak in 2018. Similarly, deliveries outside NI have increased since 2015 and the highest volume was 181.7 thousand tonnes in 2018.

Table 2.5: Ten-year trend data on total deliveries and deliveries outside Northern Ireland of compound and other processed animal feedstuffs by Northern Ireland feedstuffs manufacturers (thousand tonnes)

|  | Total deliveries | Deliveries outside NI |
|---|---|---|
| 2019 | 2497.9 | 152.0 |
| 2018 | 2603.9 | 181.7 |
| 2017 | 2446.2 | 170.5 |
| 2016 | 2238.8 | 164.4 |
| 2015 | 2253.7 | 142.3 |
| 2014 | 2313.3 | 142.6 |
| 2013 | 2316.3 | 182.4 |
| 2012 | 2193.8 | 145.3 |
| 2011 | 2085.6 | 153.8 |
| 2010 | 2071.1 | 136.6 |
| 2009 | 2013.1 | 123.3 |

Source: DAERA, 2020. Animal feed statistics data 2015-2019.

### 2.2.3 Raw materials used in animal feed production Northern Ireland

The primary raw materials used in the production of compound and other processed animal feedstuffs are wheat, whole and flaked maize and soya cake and meal. There has been an increase in the volume of such raw materials used in animal feed production in NI since 2015 (Table 2.6).

Table 2.6: Annual trend data on usage of raw materials in the production of compound and other processed animal feedstuffs in Northern Ireland (thousand tonnes)

| Raw material | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|
| Wheat | 514.9 | 514.6 | 557.1 | 600.1 | 547.5 |
| Barley | 130.3 | 131.6 | 144.5 | 179.4 | 148.0 |
| Whole and flaked maize | 410.5 | 410.8 | 461.4 | 489.9 | 579.6 |
| Maize gluten feed | 110.9 | 112.0 | 130.5 | 129.8 | 127.7 |
| By-products of malting, brewing and distilling | 121.5 | 122.3 | 155.3 | 173.1 | 149.6 |
| Other grains & cereal by-products | 124.1 | 124.7 | 119.7 | 108.1 | 90.8 |

| | | | | | |
|---|---|---|---|---|---|
| Rape seed cake and meal | 109.4 | 110.1 | 100.9 | 101.9 | 94.4 |
| Soya cake and meal | 342.4 | 346.6 | 368.9 | 384.9 | 369.3 |
| Whole oilseeds & other oilseed cakes and meals | 63.0 | 63.6 | 68.0 | 75.5 | 72.1 |
| Fish meal | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Meat and bone meal | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Milk products/by-products & other animal by-products (excluding fats) | 4.6 | 4.6 | 5.9 | 6.7 | 6.3 |
| Roots and tubers | 0.2 | 0.2 | 0.1 | 0.4 | 0.0 |
| Citrus and other fruit pulp | 10.3 | 10.4 | 11.0 | 9.9 | 7.3 |
| Molasses and sugar | 62.2 | 63.5 | 65.5 | 71.0 | 59.5 |
| Oils & fats | 19.9 | 19.8 | 21.5 | 22.7 | 24.1 |
| Dried forages & dried sugar beet pulp | 35.2 | 36.4 | 41.3 | 51.1 | 49.1 |
| Minerals, vitamins etc | 68.1 | 67.7 | 78.9 | 87.6 | 79.0 |
| Other materials | 88.2 | 89.2 | 121.1 | 127.6 | 129.2 |
| Total | 2,215.9 | 2,228.0 | 2,451.6 | 2,619.8 | 2,533.6 |

### 2.2.4 Sales and deliveries within Northern Ireland

As shown in Table 2.7 below, the highest volume of raw materials sold directly to NI farmers and distributing merchants are soya cake and meal, whole and flaked maize and barley.

Table 2.7: Annual trend data on raw materials sold direct by manufacturers to Northern Ireland farmers and distributing merchants (thousand tonnes)

| Raw material | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|
| Wheat | 15.4 | 14.7 | 15.4 | 14.2 | 15.7 |
| Barley | 26.6 | 26.5 | 23.8 | 20.1 | 30.6 |
| Whole and flaked maize | 54.6 | 50.1 | 48.1 | 44.8 | 46.4 |
| Maize gluten feed | 15.7 | 14.2 | 17.9 | 14.2 | 16.1 |
| By-products of malting, brewing and distilling | 10.9 | 12.0 | 16.7 | 17.6 | 20.7 |
| Other grains & cereal by-products | 2.7 | 2.0 | 2.3 | 1.0 | 0.9 |
| Rape seed cake and meal | 6.2 | 3.2 | 4.2 | 6.1 | 4.8 |
| Soya cake and meal | 71.7 | 73.8 | 67.5 | 76.8 | 69.1 |

| | | | | | |
|---|---|---|---|---|---|
| Whole oilseeds & other oilseed cakes and meals | 1.9 | 2.3 | 3.3 | 3.5 | 3.4 |
| Fish meal | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Milk products/by-products & other animal by-products (excluding fats) | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 |
| Roots and tubers | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Citrus and other fruit pulp | 0.3 | 0.2 | 0.5 | 0.1 | 0.2 |
| Molasses and sugar | 5.5 | 5.4 | 5.8 | 5.6 | 6.7 |
| Oils & fats | 1.3 | 1.7 | 2.0 | 1.6 | 1.8 |
| Dried forages & dried sugar beet pulp | 5.3 | 3.6 | 3.7 | 5.1 | 6.6 |
| Minerals, vitamins etc | 0.9 | 1.2 | 1.6 | 1.4 | 1.7 |
| Other materials | 3.9 | 2.8 | 2.6 | 1.7 | 2.4 |
| Total | 223.1 | 213.8 | 215.6 | 213.7 | 227.4 |

Source: DAERA animal feed statistics, February 2020

Government statistics on animal feed appears to be more limited in the RoI. Therefore, the statistics presented in this section are based on data from different sources, including the CSO and the European Feed Manufacturers' Federation (FEFAC). The data presented here represents the latest monthly or annual data available.

## 2.3 Industrial compound feed production ROI

According to the FEFAC Feed & Food 2018 report, industrial compound feed production in RoI has increased from 4,366 thousand tonnes in 2017 to 5,279 thousand tonnes in 2018 (Table 2.8). Data from the report is based on information received from the Member Associations, FEFAC contact points in European Free Trade Association (EFTA) and candidate countries as well as FEFAC's own calculations.

Table 2.8: Annual data on industrial compound feed production in the Republic of Ireland (thousand tonnes)

| Types of compound feed | 2017 | 2018 |
|---|---|---|
| Fattening | 1,278 | 1,576 |
| Dairy cows | 1,326 | 1,843 |
| Calves (excluding milk replacers) | 233 | 263 |
| Others | 82 | 125 |
| **Total Cattle** | **2,919** | **3,807** |
| Piglets | 153 | 138 |
| Pigs for fattening | 376 | 421 |
| Breeding pigs | 107 | 100 |
| Others | 56 | 53 |
| **Total Pigs** | **692** | **712** |
| **Total Poultry** | **640** | **632** |
| **Others** | **115** | **128** |
| **Total** | **4,366** | **5,279** |

Source: FEFAC, 2018. Feed & Food Statistical Yearbook 2018

### 2.3.1 Animal feed exports and imports: Republic of Ireland

As shown in Table 2.9, the volume of animal feed exports from RoI has increased slightly from 402.8 thousand tonnes in 2008 to 652.3 thousand tonnes in 2018.  A significantly higher volume of animal feed is imported.   This has also seen growth over the last 10 years, from 1,659.9 thousand tonnes in 2008 to 4,067.9 thousand tonnes in 2018. According to the farming news portal, AgriLand, imports of maize – the majority of which is used for animal feed – increased in 2019[35].  In 2018, the Minister for Agriculture, Food and the Marine stated that:

> "In Ireland, up to 80% of the animal feed requirement for ruminants is supplied from grass, hay and silage, complemented where appropriate, by compound feeds.  In the case of pigs and poultry, virtually all nutrition is derived from compound feeds.  In 2017, Ireland imported approximately 3.47 million tonnes of animal feed materials.  In addition, approximately 2.1 million tonnes of home-grown cereals is used in the production of animal feed, bringing the total usage of feed materials to about 5.6 million tonnes annually.  With our grass-based

---

[35] AgriLand, 2019. 1.2 million tonnes of maize imported so far in 2019

livestock production system, with limited tillage area, Ireland is especially dependent on feed imports relative to other EU Member States"[36].

Table 2.9: Annual data on animal feedstuffs imports and exports in the Republic of Ireland ('000 tonnes)

| | Exports | imports |
|---|---|---|
| 2018 | 652.3 | 4067.9 |
| 2017 | 607.1 | 3056.7 |
| 2016 | 569.3 | 2811.0 |
| 2015 | 535.5 | 2633.8 |
| 2014 | 438.8 | 2733.2 |
| 2013 | 512.6 | 3063.2 |
| 2012 | 475.0 | 2773.0 |
| 2011 | 525.0 | 2290.5 |
| 2010 | 475.1 | 2547.4 |
| 2009 | 388.6 | 2190.3 |
| 2008 | 402.8 | 1659.9 |

Source: CSO, 2019. Goods exports and imports classified by commodity, 2017-2018 ('Feeding stuff for animals (excluding unmilled cereals)")

According to the latest year to date (YTD) figures, as of April 2020 animal feed has been exported to at least 44 countries and imported from at least 33 countries, as summarised in Table 2.10.  In 2018, the Minister for Agriculture, Food and the Marine stated that:

> "Due to our high proportion of livestock production compared to tillage area, Ireland is especially dependent on feed imports relative to other EU Member States.  Approximately two thirds of the feed materials marketed here are imported, compared to 37% in the UK, 27% in France, and 26% in Germany.  The pig, poultry and dairy sectors are particularly dependent on imports of GM soybean and GM maize by-products as they are essential ingredients in the formulation of these feed rations"[37].

---

[36] Irish Parliament Debate, 2018. Animal Feedstuffs
[37] Ibid.

Table 2.10: 2020 YTD data on the value of export/import of animal feedstuffs from/to the Republic of Ireland by country destination/origin (€'000)

| Country | Export value YTD | Import value YTD |
|---|---|---|
| Austria | 307 | 279 |
| Australia | 473 | 108 |
| Belgium | 217 | 8,884 |
| Bulgaria | 242 | - |
| Brazil | - | 44 |
| Canada | 354 | 14,612 |
| Switzerland | 464 | 375 |
| China | 506 | 2,714 |
| Cyprus | 12 | - |
| Czech Republic | 208 | 67 |
| Germany | 6,121 | 12,189 |
| Denmark | 1,752 | 525 |
| Estonia | 36 | - |
| Spain | 1,375 | 2,047 |
| Finland | 116 | 2 |
| France | 2,214 | 18,700 |
| Greece | 226 | 34 |
| Croatia | 17 | - |
| Hungary | 235 | 242 |
| India | 2,150 | 238 |
| Italy | 6,274 | 300 |
| Japan | 1,184 | 55 |
| South Korea | 599 | - |
| Lithuania | 58 | 2,555 |
| Latvia | 44 | 6,762 |
| Malta | 119 | - |
| Malaysia | 314 | 3,221 |
| Netherlands | 2,724 | 19,458 |
| Norway | 324 | 1 |
| Poland | 292 | 3,519 |

| | | |
|---|---|---|
| Portugal | 40 | 530 |
| Romania | 2 | 36 |
| Russia | 286 | 9,837 |
| Saudi Arabia | 471 | - |
| Sweden | 628 | 5,029 |
| Singapore | 364 | - |
| Slovenia | 15 | - |
| Slovakia | 51 | - |
| Thailand | 129 | 101 |
| Turkey | 859 | 313 |
| Taiwan | 182 | - |
| USA | 3,578 | 46,292 |
| Great Britain | 55,453 | 51,521 |
| Northern Ireland | 34,757 | 38,209 |
| South Africa | 478 | - |
| Other countries | 6,338 | 93,582 |

Source: CSO, Value of Merchandise Trade by Commodity Group, Country, Month and Statistic

## 2.3.2 Land utilisation: Republic of Ireland

As shown in Table 2.11, the majority of farmed land area is dedicated to crops and pasture.  Cereals, including oats and barley, accounted for approximately 12% of farmed land use in 2019.

Table 2.11: Monthly annual data on the area under crops and pasture in the Republic of Ireland, 2017-19 ('000 hectares)

| Crops | June 2017 | June 2018 | June 2019 |
|---|---|---|---|
| Winter wheat | 60.3 | 54.4 | 59.7 |
| Spring wheat | 6.8 | 3.6 | 3.8 |
| **Total wheat** | **67.0** | **58.0** | **63.5** |
| Winter oats | 14.4 | 10.2 | 16.6 |
| Spring oats | 10.0 | 7.6 | 7.2 |
| **Total oats** | **24.4** | **17.8** | **23.8** |
| Winter barley | 65.0 | 57.9 | 82.8 |

| | | | |
|---|---|---|---|
| Spring barley | 115.2 | 127.4 | 96.5 |
| **Total barley** | **180.2** | **185.2** | **179.4** |
| **Other cereals** | **0.8** | **0.6** | **1.0** |
| Beans and peas | 13.7 | 8.5 | 8.1 |
| Oilseed rape | 10.1 | 10.6 | 10.6 |
| Arable silage | 2.9 | 3.3 | 3.3 |
| Maze silage | 11.9 | 17.8 | 17.8 |
| Fodder rape and kale | 1.6 | 1.5 | 1.5 |
| Potatoes | 9.2 | 8.2 | 8.2 |
| Turnips | 0.8 | 0.9 | 0.9 |
| Beet (sugarbeet and fodderbeet) | 10.0 | 11.3 | 11.3 |
| Vegetables for sale | 3.6 | 3.6 | 3.6 |
| Fruit | 0.8 | 0.8 | 0.8 |
| Nurseries, horticulture etc. | 0.5 | 0.5 | 0.5 |
| Other crops* | 28.1 | 28.4 | 28.4 |
| **Total crops, fruit and horticulture** | **365.6** | **357.0** | **356.7** |
| Silage | 1,088.9 | 1,064.5 | 1,088.7 |
| Hay | 192.1 | 191.9 | 180.8 |
| Pasture | 2,322.7 | 2,378.7 | 2,376.7 |
| **Crops and pasture** | **3,969.3** | **3,992.2** | **4,002.8** |
| Rough grazing in use | **520.2** | **524.1** | **521.5** |
| **Area farmed** | **4,489.5** | **4,516.3** | **4,524.4** |

\* Includes other crops not specified elsewhere in the table, miscanthus, fallow land & wild bird cover account for over 80% of this area. See background notes on CSO website.

Source: CSO 2020. Area under crops and pasture, 2017-19,

## 2.4 Summary

In NI, the compound animal feed industry has grown over the last 10 years from 2,013.1 thousand tonnes in 2009 to 2,497.9 thousand tonnes in 2019.  Increases in animal feed produced for cattle, poultry and pigs have contributed to the overall growth of this sector.  The data on deliveries outside of NI indicates a degree of self-sufficiency in animal feed production for NI farmers.  In RoI, government data on animal feed is not as widely available.  According to the FEFAC Feed & Food 2018 report, industrial compound feed production in RoI has increased from 4,366 thousand tonnes in 2017 to 5,279 thousand tonnes in 2018.  However, there is a higher dependency in RoI on animal feed imports than in NI.

# 3 Food Price data

## 3.1 Northern Ireland

Research to establish the cost of a food basket that meets the Minimal Essential Standard of Living[38] (MESL) in NI (carried out by the Food Standards Agency) found that the cost of the MESL increased between 2016 and 2018 by between 4.2% and 4.6%. The proportion of income that households needed to spend on a food basket in 2018 ranged from 26% to 46% of take-home pay (Table 3.1). Those who depend solely on state benefits were reported to spend the highest proportion of their income on food[39].

Table 3.1: Weekly cost of a weekly minimum essential food basket (£) and cost of a basket as a percentage of take-home income for 4 household types in Northern Ireland in 2016 and 2018[40]

| Household type | Cost of food basket per week | | | Income scenario | Food basket cost as a % of take-home income | |
|---|---|---|---|---|---|---|
| | 2016 | 2018 | %change | | 2016 | 2018 |
| Two parents & 2 children (pre-school & primary school) | 115 | 120 | +4.4 | State benefit | 33 | 34 |
| | | | | One adult employed earning National Living Wage | 24 | 26 |
| Two parents & 2 children (primary & secondary school) | 153 | 159 | +4.2 | State benefit | 44 | 46 |
| | | | | One adult employed earning National Living Wage | 31 | 35 |
| One parent & 2 children (pre-school & primary school) | 99 | 103 | +4.4 | State benefit | 32 | 33 |
| | | | | One adult employed earning National Living Wage | | |
| Pensioner (female, living alone) | 57 | 60 | +4.6 | State pension | 34 | 33 |

Source: *safe*food, What is the cost of a healthy food basket in Northern Ireland in 2018?[41]

---

[38] The Minimal Essential Standard of Living (MESL) is a standard of living which no one should be expected to live below. It is decided by members of the public who agree on what is needed to live at an acceptable dignified standard and participate in society meeting the physical, psychological and social needs of individuals and households. It applies to everyone and not just those in poverty. It takes into account the actual weekly cost of over 2,000 goods and services that are needed to enable a socially acceptable minimum standard of living. As such, it complements other poverty measures.

[39] Safefood and FSA, 2020. *The cost of a healthy food basket in Northern Ireland in 2018.*

[40] Consensual Budget Standards methodology was used to establish the average weekly cost of the food element of a MESL for 4 household types in Northern Ireland adjusted to reflect food costs in 2018. A low income scenario was used to establish the percentage of take-home pay spent on a healthy food basket for the household types. The 'UK Consumer Price Index data' was used to update the price for 2018.

[41] MacMahon, B, Thornton, R and McEvoy, O (2019). What is the cost of a healthy food basket in Northern Ireland in 2018? Dublin: Safefood

## Table 3.2: Minimal essential food basket by sub-category: Northern Ireland

| | 2 parent & 2 children | | 2 parent & 2 children | | 1 parent & 2 children | | Pensioner, female | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Pre-school & primary school | | Primary & secondary school | | Pre-school & primary school | | Living alone | |
| | Cost P/w £ | % of food MESL | Cost P/w £ | % of food MESL | Cost P/w £ | % of food MESL | Cost P/w £ | % of food MESL |
| Bread and cereals | 12.97 | 11 | 16.22 | 10 | 11.58 | 11 | 2.38 | 4 |
| Meat | 29.60 | 25 | 41.34 | 26 | 24.73 | 24 | 11.33 | 19 |
| Fish | 4.10 | 3 | 4.58 | 3 | 2.68 | 3 | 2.33 | 4 |
| Milk, cheese and eggs | 13.22 | 11 | 10.12 | 6 | 9.57 | 9 | 3.67 | 6 |
| Oils and fats | 1.73 | 1 | 3.84 | 2 | 2.73 | 3 | 0.55 | 1 |
| Fruit | 13.93 | 12 | 13.54 | 8 | 9.98 | 10 | 3.13 | 5 |
| Vegetables including potatoes and tubers | 13.36 | 11 | 17.51 | 11 | 12.02 | 12 | 9.08 | 15 |
| Sugar, Jam and syrups | 0.47 | 0 | 0.92 | 1 | 1.17 | 1 | 0.00 | 0 |
| Food products nec* | 1.21 | 1 | 3.17 | 2 | 3.46 | 3 | 1.85 | 3 |
| Coffee, tea and cocoa | 2.04 | 2 | 4.04 | 3 | 1.61 | 2 | 1.13 | 2 |
| Mineral waters, soft drinks and juices | 2.25 | 2 | 2.68 | 2 | 1.36 | 1 | 0.00 | 0 |
| Alcoholic beverages | 8.46 | 7 | 10.28 | 6 | 6.17 | 6 | 3.98 | 7 |
| Take-away | 5.44 | 5 | 6.64 | 4 | 3.99 | 4 | 3.26 | 5 |
| Treats | 3.95 | 3 | 3.14 | 2 | 3.24 | 3 | 2.49 | 4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| School lunch and milk | 6.26 | 5 | 19.99 | 13 | 8.04 | 8 | 0.00 | 0 |
| Extra for visitors | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 10.06 | 17 |
| Extra for Christmas | 1.16 | 1 | 1.41 | 1 | 0.01 | 1 | 0.48 | 1 |
| Eating out | 0.00 | 0 | 0.00 | 0 | 0.00 | 0 | 4.05 | 7 |
| TOTAL | 120.17 | 100 | 159.44 | 100 | 103.33 | 100 | 59.76 | 100 |

Source: *safe*food, What is the cost of a healthy food basket in Northern Ireland in 2018? *Food products not elsewhere classified

Table 3.2 details that, in NI, meat accounts for the largest proportion of the minimum food costs in the minimal essential food basket across each household type – approximately a quarter of food costs for households with children and around a fifth for a female pensioner living alone. Differences can be seen in minimum costs allocated for meals out and additional costs for having visitors at home as the social inclusion aspect of food is recognised to be important. With this in mind, a higher cost for receiving visitors has been budgeted for pensioners in the MESL food basket.

The following tables provide an overview of the costs of various foods for the different family types that were included in the study.

Table 3.3: Change in cost of food by sub-category from 2014-2018 for a 2 parent & 2 child (pre-school & primary school) household in Northern Ireland

| Food sub-category | 2014 (£) | 2015 (£) | 2016 (£) | 2017 (£) | 2018 (£) |
|---|---|---|---|---|---|
| Bread and cereals | 12.85 | 12.80 | 12.55 | 12.72 | 12.97 |
| Meat | 30.18 | 30.01 | 28.69 | 28.69 | 29.60 |
| Fish | 3.95 | 3.83 | 3.63 | 3.95 | 4.10 |
| Milk, cheese and eggs | 13.47 | 13.08 | 12.53 | 12.64 | 13.22 |
| Oils and fats | 1.54 | 1.48 | 1.37 | 1.59 | 1.73 |
| Fruit | 13.43 | 13.05 | 13.30 | 13.47 | 13.93 |
| Vegetables | 13.52 | 13.57 | 13.01 | 13.24 | 13.36 |
| Sugar, Jam and syrups | 0.46 | 0.46 | 0.45 | 0.46 | 0.47 |
| Food products not elsewhere classified | 1.19 | 1.18 | 1.18 | 1.20 | 1.21 |
| Coffee, tea and cocoa | 1.89 | 1.88 | 1.89 | 1.95 | 2.04 |
| Mineral waters, soft drinks, etc | 2.27 | 2.29 | 2.26 | 2.17 | 2.25 |
| Alcoholic beverages | 8.49 | 8.56 | 8.23 | 8.40 | 8.46 |
| Take-away | 5.00 | 5.02 | 5.11 | 5.26 | 5.44 |
| Treats | 3.93 | 3.89 | 3.78 | 3.84 | 3.95 |
| School lunch and milk | 5.83 | 5.83 | 6.05 | 6.05 | 6.26 |
| Extra for Christmas | 1.15 | 1.14 | 1.11 | 1.13 | 1.16 |
| TOTAL | 119.17 | 118.09 | 115.14 | 116.75 | 120.17 |

Source: *safefood*, What is the cost of a healthy food basket in Northern Ireland in 2018?

As shown in Table 3.3, food costs for a four-person NI household (two parents and two children) have remained relatively stable since 2014.  Spending on school lunches and takeaways increased by £0.43 and £0.44, whilst spending on fruit decreased by £0.50.  Table 3.4 provides an overview of spending for 2016, 2017 and 2018 for two different household compositions.  Spending on food has remained relatively stable across these compositions.

Table 3.4: Changes in cost by food-subcategory from 2016-2018 for different household compositions in Northern Ireland

| | 2016 (£) | | 2017 (£) | | 2018 (£) | |
|---|---|---|---|---|---|---|
| | 1 parent and 2-child (pre-school & primary school household) | 2-parent & 2-child (primary & secondary school household) | 1 parent and 2-child (pre-school & primary school household) | 2-parent & 2-child (primary & secondary school household) | 1 parent and 2-child (pre-school & primary school household) | 2-parent & 2-child (primary & secondary school household) |
| Bread and cereals | 11.21 | 15.69 | 11.36 | 15.91 | 11.58 | 16.22 |
| Meat | 23.96 | 40.06 | 23.96 | 40.06 | 24.73 | 41.34 |
| Fish | 2.37 | 4.05 | 2.58 | 4.40 | 2.68 | 4.58 |
| Milk, cheese and eggs | 9.06 | 9.59 | 9.15 | 9.68 | 9.57 | 10.12 |
| Oils and fats | 2.17 | 3.05 | 2.51 | 3.52 | 2.73 | 3.84 |
| Fruit | 9.53 | 12.93 | 9.65 | 13.10 | 9.98 | 13.54 |
| Vegetables | 11.71 | 17.05 | 11.92 | 17.35 | 12.02 | 17.51 |
| Sugar, jam and syrups | 1.12 | 0.89 | 1.13 | 0.89 | 1.17 | 0.92 |
| Other Food products | 3.37 | 3.09 | 3.43 | 3.14 | 3.46 | 3.17 |
| Coffee, tea and cocoa | 1.49 | 3.75 | 1.54 | 3.88 | 1.61 | 4.04 |

| | | | | | |
|---|---|---|---|---|---|
| Mineral waters, soft drinks, | 1.37 | 2.70 | 1.31 | 2.58 | 1.36 | 2.68 |
| Alcoholic beverages | 6.00 | 10.00 | 6.12 | 10.20 | 6.17 | 10.28 |
| Take-away | 3.75 | 6.25 | 3.86 | 6.43 | 3.99 | 6.64 |
| Treats | 3.09 | 3.00 | 3.14 | 3.05 | 3.24 | 3.14 |
| School lunch and milk | 7.83 | 19.57 | 7.83 | 19.57 | 8.04 | 19.99 |
| Extra for Christmas | 0.96 | 1.35 | 0.98 | 1.37 | 1.01 | 1.41 |
| TOTAL | 99.00 | 153.00 | 100.46 | 155.14 | 103.33 | 159.44 |

Source: *safe*food, What is the cost of a healthy food basket in Northern Ireland in 2018?

Table 3.5 provides an overview of spending on various food categories for lone female pensioner households.

Table 3.5: Changes in cost by food sub-category from 2014-2018 for a female pensioner, living alone in Northern Ireland

| | 2014 (£) | 2015 (£) | 2016 (£) | 2017 (£) | 2018 (£) |
|---|---|---|---|---|---|
| Bread and cereals | 2.35 | 2.35 | 2.30 | 2.33 | 2.38 |
| Meat | 11.55 | 11.48 | 10.98 | 10.98 | 11.33 |
| Fish | 2.24 | 2.17 | 2.06 | 2.24 | 2.33 |
| Milk, cheese and eggs | 3.74 | 3.63 | 3.48 | 3.51 | 3.67 |
| Oils and fats | 0.49 | 0.47 | 0.44 | 0.51 | 0.55 |
| Fruit | 3.02 | 2.94 | 2.99 | 3.03 | 3.13 |
| Vegetables | 9.18 | 9.21 | 8.84 | 8.99 | 9.08 |
| Sugar, jams and syrups | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Food products not elsewhere classified | 1.82 | 1.80 | 1.80 | 1.83 | 1.85 |
| Coffee, tea and cocoa | 1.05 | 1.04 | 1.05 | 1.08 | 1.13 |
| Mineral waters, soft drinks, etc. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Alcoholic beverages | 3.99 | 4.02 | 3.87 | 3.95 | 3.98 |
| Take-away | 3.00 | 3.01 | 3.07 | 3.06 | 3.26 |
| Treats | 2.47 | 2.45 | 2.38 | 2.41 | 2.49 |
| Extra for visitors | 10.00 | 9.91 | 9.61 | 9.77 | 10.06 |
| Extra for Christmas | 0.48 | 0.48 | 0.46 | 0.47 | 0.48 |
| Eating out | 3.75 | 3.76 | 3.84 | 3.94 | 4.05 |
| TOTAL | 59.13 | 58.73 | 57.14 | 58.19 | 59.76 |

Source: *safe*food, What is the cost of a healthy food basket in Northern Ireland in 2018?

As with the other household compositions, spending on various food categories has remained relatively stable since 2014.  Whilst spending on meat has decreased marginally (£0.22), spending on fish also increased marginally (£0.09).  Spending on takeaway food increased by £0.26 and eating out increased by £0.30.

## 3.2 Republic of Ireland

Table 3.6 provides an overview of the minimum cost of a healthy food basket in the RoI for the years 2016 and 2018 by different household types. The average weekly cost of a minimum healthy food basket decreased between 2016 and 2018 (by 4.4%).

Table 3.6: Cost of a weekly minimum essential food basket (€) and percentage of take-home income for 6 household types in the Republic of Ireland in 2016 and 2018

| Household type | Total basket cost* | | % of take-home income | | | |
| | | | Dependant on state benefits | | One adult employed (earning the National Minimum Wage) | |
| | 2016 | 2018 | 2016 | 2018 | 2016 | 2018 |
|---|---|---|---|---|---|---|
| Two-parent two-child (Pre-school and primary) | €133 | €128 | 30% | 28% | 23% | 22% |
| Two-parent two-child (primary and secondary) | €160 | €153 | 36% | 33% | 28% | 26% |
| One-parent two-child (pre-school and primary school) | €101 | €97 | 31% | 28% | 16% | 15% |
| Single adult | €55 | €53 | 29% | 27% | 17% | 15% |
| Female pensioner living alone | €64 | €53 | 26% | 23% | N/A | N/A |
| Pensioner couple | €86 | €83 | 21% | 19% | N/A | N/A |

Source: *safe*food, "What is the cost of a healthy food basket in the Republic of Ireland in 2016?" & "What is the cost of a healthy food basket in the Republic of Ireland in 2018?"

Table 3.7 provides an overview of food and non-alcoholic price changes for March 2019 and includes the average price change – as measured by the Consumer Price Index (CPI) – since the previous month and over the previous 12-month period. The CPI measures the overall change in the prices of frequently purchased goods and services, collecting data on approximately 53,000 prices each month. The goods and services which are included are determined from the Household Budget Survey and represent an average household in Ireland[42].

---

[42] CSO website. *What is the CPI?*

Table 3.7: Food and non-alcoholic price changes over 12 months in the Republic of Ireland (March 2018 – March 2019)

| | Monthly Change | % Change 12 Months |
|---|---|---|
| Overall CPI | +0.8% | +1.1% |
| Food & Non-Alcoholic Beverages | +0.4% | -0.6% |
| Food | +0.3% | -0.7% |
| Beef & Veal | +3.7% | -1.5% |
| Pork | +1.9% | -3.6% |
| Lamb & Goat | -0.6% | -4.0% |
| Poultry | -0.5% | -1.3% |
| Other Meat Preparations | -0.5% | -0.9% |
| Fish | -1.4% | -0.4% |
| sBread & Cereals | +0.9% | -0.6% |
| Fresh Whole Milk | 0.0% | -0.2% |
| Other Milk Products | +0.2% | -3.5% |
| Cheese & Curd | -1.9% | -3.4% |
| Eggs | -0.3% | -0.5% |
| Butter | -1.1% | -1.1% |
| Sugar | -0.2% | -6.3% |
| Potatoes | -0.6% | +16.1% |
| Other Fresh or Chilled Vegetables | +0.5% | -1.6% |
| Fresh or Chilled Fruit | +0.4% | -1.7% |
| Tea, Coffee & Cocoa | +0.3% | -2.8% |
| Mineral Waters, Soft Drinks & Juices | +1.5% | +0.5% |
| Non-Alcoholic Beverages | +1.2% | -0.3% |
| Alcoholic Beverages | -1.6% | -0.1% |

Source: DAFM, Consumer Price Index (Published April 2019).

## 3.3 Consumer expenditure on food

The data in the tables below provide an overview of average weekly expenditure and total weekly expenditure by UK households on food (see Table 3.8) and non-alcoholic drinks (see Table 3.9). Expenditure is broken down by place of purchase: large supermarket chains, other outlets and internet expenditure. Large supermarket chains are the most common place where UK households purchase food and non-alcoholic drinks, with average weekly expenditures of £44.60 and £4.10, respectively. The data was captured using the Living Costs and Food Survey (LCF) which is a voluntary sample survey of private households. Each individual in a selected household is asked to complete a household interview and then an expenditure diary for two weeks.

Table 3.8: United Kingdom expenditure on food by place of purchase, 2019

| | Large supermarket chains* | | | Other outlets | | | Internet expenditure** | | |
|---|---|---|---|---|---|---|---|---|---|
| | Average weekly expenditure all households (£) | Total weekly expenditure (£Mn) | Recording households in sample | Average weekly expenditure all household (£) | Total weekly expenditure (£Mn) | Recording households in sample | Average weekly expenditure all household (£) | Total weekly expenditure (£Mn) | Recording households in sample |
| Food | 44.60 | 1,226 | 5,330 | 8.30 | 229 | 4,660 | 3.60 | 99 | 550 |
| Bread, rice and cereals | 4.40 | 122 | 5,090 | 0.70 | 20 | 2,290 | 0.30 | 10 | 450 |
| Pasta products | 0.30 | 10 | 2,080 | 0.10 | 2 | 420 | 0.00~ | 1 | 200 |
| Buns, cakes, biscuits, etc | 3.10 | 86 | 4.630 | 0.60 | 16 | 1,950 | 0.20 | 6 | 350 |
| Pastry (savoury) | 0.90 | 24 | 2,100 | 0.00~ | 1 | 260 | 0.10 | 2 | 140 |
| Beef (fresh, chilled or frozen) | 1.40 | 39 | 2,040 | 0.40 | 10 | 560 | 0.10 | 3 | 180 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pork (fresh, chilled or frozen) | 0.40 | 11 | 950 | 0.10 | 3 | 250 | 0.00~ | 1 | 60 |
| Lamb (fresh, chilled or frozen) | 0.30 | 8 | 450 | 0.30 | 7 | 190 | 0.00~ | 1 | 30 |
| Poultry (fresh, chilled or frozen) | 1.70 | 48 | 2,570 | 0.50 | 12 | 620 | 0.10 | 4 | 200 |
| Bacon & ham | 0.70 | 18 | 2,020 | 0.10 | 3 | 480 | 0.10 | 2 | 150 |
| Other meats and meat preparations | 5.40 | 147 | 4,530 | 0.80 | 23 | 1,660 | 0.40 | 11 | 390 |
| Fish and fish products | 2.40 | 67 | 3,250 | 0.40 | 10 | 690 | 0.20 | 5 | 250 |
| Milk | 1.60 | 45 | 4,470 | 0.40 | 11 | 1,630 | 0.10 | 4 | 350 |
| Cheese and curd | 1.70 | 48 | 3,680 | 0.20 | 4 | 760 | 0.20 | 5 | 320 |
| Eggs | 0.60 | 15 | 2,760 | 0.10 | 3 | 690 | 0.10 | 1 | 230 |
| Other milk products | 2.00 | 55 | 4,060 | 0.10 | 3 | 890 | 0.20 | 5 | 340 |
| Butter | 0.40 | 11 | 1,360 | 0.00~ | 1 | 250 | 0.00~ | 1 | 110 |
| Margarine, other vegetable fats /peanut butter | 0.50 | 14 | 2,080 | 0.00~ | 1 | 340 | 0.00~ | 1 | 170 |
| Cooking oils and fats | 0.30 | 99 | 4,690 | 0.50 | 12 | 1,320 | 0.30 | 9 | 400 |
| Fresh fruit | 3.50 | 97 | 4,480 | 0.30 | 8 | 1,150 | 0.20 | 7 | 380 |
| Other fresh, chilled or frozen fruits | 0.40 | 11 | 1,540 | 0.00~ | 1 | 280 | 0.00~ | 1 | 130 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dried fruits and nuts | 0.70 | 18 | 1,740 | 0.20 | 4 | 490 | 0.00~ | 1 | 110 |
| Preserved fruit and fruit-based products | 0.10 | 4 | 750 | 0.00~ | 0~ | 120 | 0.00~ | 0~ | 60 |
| Fresh vegetables | 3.60 | 99 | 4,690 | 0.50 | 12 | 1,320 | 0.30 | 9 | 400 |
| Dried vegetables and other preserved and processed vegetables | 0.70 | 20 | 3,040 | 1 | 26 | 2,930 | 0.10 | 3 | 290 |
| Potatoes | 0.60 | 17 | 2,950 | 0.10 | 2 | 680 | 0.00~ | 1 | 220 |
| Other tubers and products of tuber vegetables | 1.50 | 42 | 3,730 | 0.20 | 4 | 1,130 | 0.10 | 3 | 290 |
| Sugar and sugar products | 0.30 | 8 | 1,440 | 0.10 | 2 | 410 | 0.00~ | 1 | 110 |
| Jams, marmalades | 0.20 | 6 | 1,220 | 0.10 | 1 | 280 | 0.00~ | 0~ | 80 |
| Chocolate | 1.50 | 42 | 3,110 | 0.50 | 13 | 1,510 | 0.10 | 2 | 170 |
| Confectionery products | 0.50 | 14 | 2,100 | 0.30 | 8 | 1,180 | 0.00~ | 1 | 100 |
| Edible ices and ice cream | 0.70 | 18 | 1,770 | 0.10 | 2 | 330 | 0.10 | 1 | 130 |
| Other food products | 2.00 | 54 | 4,120 | 0.50 | 13 | 1,380 | 0.20 | 7 | 380 |

Note: The commodity and service categories are not comparable with those in publications before 2001-02.
* In 2011 the list of large supermarket chains was updated.
** Includes internet expenditure from large supermarket chains.
Source: ONS, Family Spending Workbook 1: detailed expenditure and trends.

Table 3.9: United Kingdom expenditure on non-alcoholic drinks by place of purchase, 2019

| | Large supermarket chains | | | Other outlets | | | Internet expenditure | | |
|---|---|---|---|---|---|---|---|---|---|
| | Average weekly expenditure all households (£) | Total weekly expenditure (£million) | Recording households in sample | Average weekly expenditure all households | Total weekly expenditure (£Mn) | Recording households in sample | Average weekly expenditure all households | Total weekly expenditure (£million) | Recording households in sample |
| Non-alcoholic drinks | 4.10 | 112 | 4,620 | 0.80 | 23 | 2,230 | 0.40 | 11 | 410 |
| Coffee | 0.70 | 21 | 1,660 | 0.10 | 4 | 460 | 0.10 | 3 | 130 |
| Tea | 0.30 | 9 | 1,240 | 0.10 | 2 | 370 | 0.00~ | 1 | 100 |
| Cocoa and powdered chocolate | 0.10 | 2 | 300 | 0.00~ | 1 | 80 | 0.00~ | 0~ | 30 |
| Fruit and vegetable juices (incl. fruit squash) | 0.90 | 25 | 2,770 | 0.10 | 2 | 570 | 0.10 | 3 | 260 |
| Mineral or spring waters | 0.30 | 9 | 1,380 | 0.10 | 2 | 390 | 0.00~ | 1 | 100 |
| Soft drinks | 1.70 | 47 | 3,160 | 0.50 | 13 | 1,530 | 0.10 | 4 | 230 |

Source: ONS, Family Spending Workbook 1: detailed expenditure and trends.

### 3.3.1 Northern Ireland

The average household in NI spent a weekly average of £63.10 on food and non-alcoholic drinks between 2016 and 2018 (see Table 3.10). This was the second largest weekly expenditure after transport (£72.70).

Table 3.10: Average weekly household expenditure 2016-18 (£) in Northern Ireland

| Commodity or service | Average weekly household expenditure (£) |
|---|---|
| Food & non-alcoholic drinks | 63.20 |
| Alcoholic drinks, tobacco & narcotics | 16.30 |
| Clothing & footwear | 30.90 |
| Housing(net)*, fuel & power | 53.40 |
| Household goods & services | 31.50 |
| Health | 6.40 |
| Transport | 72.70 |
| Communication | 17.20 |
| Recreation & culture | 53.70 |
| Education | 5.60 |
| Restaurants & hotels | 46.80 |
| Miscellaneous goods & services | 40.90 |
| All expenditure groups | 438.60 |
| Other expenditure items | 50.50 |
| Total expenditure | 489.10 |
| Average weekly expenditure per person (£) | 199.60 |

Source: ONS, Household expenditure by countries and regions, Northern Ireland.
* Excluding mortgage interest payments, council tax and Northern Ireland rates.

Table 3.11 lists the price level results of each region of the UK relative to the national price level (UK=100) according to the Classification of Individual Consumption According to Purpose (COICOP) division level[43]. The COICOP divides goods and services according to their purpose for use or consumption. There was little variation in 2016 across each region in terms of price for food and non-alcoholic beverages. The relative price level of NI however was the lowest overall of all regions. Prices in NI were on average 2.3% lower than the UK.

---

[43] "The Classification of Individual Consumption by Purpose, abbreviated as COICOP, is a classification developed by the United Nations Statistics Division to classify and analyse individual consumption expenditures incurred by households, non-profit institutions serving households and general government according to their purpose. It includes categories such as clothing and footwear, housing, water, electricity and gas and other fuels". Eurostat website, 2019.

Table 3.11: Regional price level relative to national price level (United Kingdom=100), 2016

| Division | London | England (excluding London) | Scotland | Wales | Northern Ireland |
|---|---|---|---|---|---|
| Food & non-alcoholic beverages | 102.2 | 97.6 | 99.8 | 100.8 | 99.7 |
| Alcohol & tobacco | 103.0 | 96.8 | 99.4 | 102.3 | 98.6 |
| Clothing and footwear | 103.5 | 101.3 | 99.2 | 97.7 | 98.5 |
| Household & housing services* | 105.1 | 98.7 | 99.7 | 99.6 | 97.0 |
| Furniture & household goods | 112.2 | 97.4 | 103.2 | 95.5 | 99.8 |
| Transport | 103.3 | 100.4 | 99.7 | 100.6 | 96.1 |
| Communication | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Recreation & culture | 11438 | 96.2 | 101.4 | 96.8 | 95.8 |
| Restaurant & culture | 113.0 | 97.4 | 100.4 | 95.1 | 98.3 |
| Miscellaneous goods & services | 110.5 | 99.7 | 104.8 | 96.2 | 93.4 |
| All | 107.0 | 98.7 | 100.4 | 98.5 | 97.7 |

Source: ONS, Relative regional consumer price levels of goods and services, UK (2016).

* Excluding rental costs and costs associated with owner occupied housing

According to the Which? Consumer Insight Report 2019 for NI (which analysed ONS Living cost and food survey data), weekly consumer expenditure in NI averaged £557 a week - £90 lower than the UK average (£647)[44]. As goods and services were on average 2.4% cheaper in NI, the discrepancy in spending levels could be explained by median earnings data obtained from the ONS for NI and the UK (£22,083 and £24,006 respectively). The same report found that the largest proportion of people in NI were most likely to expect to increase their spending on three commodities, including the weekly food shop (34%) (Table 3.12).

[44] Which? Consumer Insight Report 2019 Northern Ireland. https://consumerinsight.which.co.uk/reports/consumer-insight-report-2019-northern-ireland

Table 3.12: Proportion of Northern Ireland consumers expecting to increase spending

| Commodity | NI | UK |
|---|---|---|
| Energy | 43% | 33% |
| Running a car | 37% | 31% |
| Groceries | 34% | 28% |
| Home Improvements | 27% | 23% |
| Housing (rent or mortgage) | 20% | 18% |
| Public transport | 18% | 16% |
| Clothing and footwear | 17% | 14% |

Source: Which? Analysis of ONS Living costs and food survey 2015/16 and 2016/17

Table 3.13 below, sets out the proportion of households in NI who were spending on the listed commodities and services, based on survey participants who kept detailed diaries of their outgoings over a two-week period.  The figures show that a higher proportion of NI households were spending on these goods and services compared to the UK average, except for bank charges.

Table 3.13: Proportions (%) of households spending on selected items per week, Northern Ireland and the United Kingdom in total

| | NI | UK |
|---|---|---|
| Meat | 98 | 93 |
| Vegetables | 97 | 96 |
| Restaurants & takeaways | 92 | 86 |
| Confectionary | 91 | 87 |
| Petrol & diesel | 74 | 61 |
| Clothing & footwear | 73 | 65 |
| Furniture | 51 | 41 |
| Tobacco | 28 | 17 |
| Bank charges | 25 | 34 |
| Appliances | 11 | 8 |

Source: Which? Analysis of ONS Living costs and food survey 2015/16 and 2016/17.

### 3.3.2 Republic of Ireland

Data for the RoI on household expenditure on food is presented in the CSO Household Budget Survey which is conducted every 5 years. Hence the most recent data is from 2015-16 (Table 3.14). The next survey is due to be conducted in 2021. In 2015, total food expenditure represented 15% of the average weekly household expenditure of €837.47.

Table 3.14: Average weekly household expenditure (€) in the Republic of Ireland (2015-2016)

| Total average weekly household expenditure in euros (2015-16) | 837.47 |
|---|---|
| Total food | 123.28 |
| Total drink and tobacco | 28 |
| Total clothing and footwear | 33.65 |
| Total fuel and light | 38.56 |
| Total housing | 164.36 |
| Total household non-durable goods | 16.51 |
| Total transport | 124.39 |
| Total miscellaneous goods, services and other expenditure | 281.21 |

Source: CSO, Household Budget Survey 2015.

Table 3.15 details the average weekly household expenditure by food type. Meat represents the highest proportion of spend of the average house expenditure for food.

Table 3.15. Average weekly household expenditure (€) in the Republic of Ireland by food expenditure type (2015-2016)

| Expenditure type | € |
|---|---|
| Total food consumed at home | 93.23 |
| Bread | 5.21 |
| Flour | 0.22 |
| Pastries and biscuits | 6.22 |
| Breakfast cereals | 1.82 |
| Milk, cream, yoghurts and cheese | 9.72 |
| Butter, fats and cooking oil | 2.21 |

| | |
|---|---|
| Eggs | 1.37 |
| Pasta, pizza, quiche and grains | 2.26 |
| Meat | 21.04 |
| Fish | 3.28 |
| Fruit and nuts | 7.20 |
| Vegetables | 9.83 |
| Sugars, confectionary and snacks | 8.60 |
| Other food items | 5.27 |
| Non-alcoholic beverages | 6.87 |
| Takeaway food brought/delivered to home | 5.90 |
| Meals away from home (incl. takeout tea/coffee | 26.27 |

Source: CSO, Household Budget Survey 2015 (next release due 2021).

Table 3.16 below provides a comparison of the average household weekly expenditure on food, non-alcoholic drink and alcoholic drink and tobacco for the IoI. Data is currently unavailable to compare each jurisdiction year-on-year; however, data on average weekly expenditure is provided for NI for years 2014-2016 and 2016-2018 to provide a better overview of expenditure changes over time for this jurisdiction. Households in RoI spent on average at least €20 more on food and non-alcoholic drink compared to NI households.

Table 3.16: Average weekly expenditure on food and drink on the island of Ireland (€)

| | Food & Non-Alcoholic drink | Meals away from home | Alcoholic drink, tobacco & narcotics*[45] | TOTAL |
|---|---|---|---|---|
| NI : 2016-2018 | €70.05 | **[46] | €17.98 | €87.98 |
| NI[47]: 2014-2016 | €71.27 | ** | €17.32 | €87.59 |
| ROI : 2015 - 2016 | €93.23 | €26.27 | €28.00 | €147.50 |

Sources: ONS, Household expenditure by countries and regions, Northern Ireland; CSO, Household Budget Survey 2015.

---

[45] *narcotics NI only
[46] **No data available
[47] NI prices correct as of 5th July 2020 (exchange rate £1 = €1.11)

## 3.4 Consumer Expenditure by Household Income

### 3.4.1 United Kingdom (including Northern Ireland)

Relative spending across the income distribution varies more for some categories. For example, looking at expenditure on food and non-alcoholic drinks, those in the lowest decile are spending more than half (53.3%) that of the highest decile. Overall spending for those in Decile 1 is less than a third (27.9%) than that of those in Decile 10, highlighting that those in the lower income decile are spending proportionately more on food.

Table 3.17 shows the proportion spent on food by those in the lowest decile (14%) compared to those in decile 10 (7%). The highest decile spend twice as much as the lowest on food and non-alcoholic drinks, yet their proportionate spend is half.

Table 3.17: Proportion of total spending by category and income decile: United Kingdom: FYE 2019

|  | Decile 1 | Decile 2 | Decile 3 | Decile 4 | Decile 5 | Decile 6 | Decile 7 | Decile 8 | Decile 9 | Decile 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Transport | 11.2 | 10.8 | 12.5 | 13.5 | 13.5 | 15.4 | 15.2 | 15.2 | 15.4 | 15.4 |
| Housing | 28.3 | 26.9 | 25.6 | 24.3 | 20.5 | 20.7 | 20.8 | 21.0 | 19.2 | 18.1 |
| Recreation & culture | 9.8 | 10.9 | 10.4 | 10.2 | 13.3 | 12.9 | 14.0 | 14.2 | 15.5 | 13.5 |
| Food & non-alchoholic drinks | 13.9 | 15.3 | 13.4 | 12.5 | 11.7 | 11.0 | 10.1 | 9.6 | 8.9 | 7.2 |
| Household goods & services | 6.3 | 5.7 | 6.0 | 7.2 | 6.0 | 7.3 | 6.4 | 6.4 | 6.3 | 9.0 |
| Restaurants & hotels | 6.8 | 7.0 | 7.8 | 7.3 | 8.6 | 8.2 | 8.9 | 9.3 | 9.4 | 9.9 |
| Other COICOP expenditure | 23.7 | 23.4 | 24.3 | 25.0 | 26.4 | 24.5 | 24.6 | 24.3 | 25.3 | 26.9 |

Source: ONS, Family spending in the UK (2018-2019).
**Deciles are based on household equivalised disposable income.**
**Housing includes housing (net), fuel and power, mortgage interest and Council Tax and excludes mortgage capital payments.**
**'Other' COICOP (Classification of Individual Consumption by Purpose categories) spending includes: alcoholic drinks, tobacco and narcotics, clothing and footwear, health, communication, education, miscellaneous goods and services and other expenditure items (less mortgage interest, Council Tax and so on).**

The lowest income decile spends an average of £33.50 per week on food and non-alcoholic drinks, which equates to approximately 13.5% of their total weekly expenditure (£246.70). By comparison, those in the highest income decile spend an average of £101.30 per week on food and non-alcoholic

drinks – which equates to a smaller proportion (approximately 8.5%) of their total weekly expenditure (£1191.00).

### 3.4.2 Northern Ireland

Table 3.18 details average weekly expenditure on food and non-alcoholic drinks by gross income quintile group in NI between 2014 and 2016.

Table 3.18: Average weekly household expenditure by gross income quintile group in Northern Ireland 2014-2016 (£)

|  | Lowest quintile group | Second quintile group | Third quintile group | Fourth quintile group | Highest quintile group | All households |
|---|---|---|---|---|---|---|
| Food | 36.40 | 52.40 | 58.30 | 81.30 | 87.40 | 59.00 |
| Non-alcoholic drinks | 2.80 | 4.70 | 6.40 | 7.20 | 7.00 | 5.20 |
| Food and non-alcoholic drink total | 39.10 | 57.10 | 64.70 | 88.50 | 94.40 | 64.20 |

Source: ONS, Living Costs and Food Survey.

### 3.4.3 Republic of Ireland

The Central Statistics Office (CSO) Household Budget Survey 2015-2016 revealed that households in very affluent areas had the highest overall weekly expenditure with a weekly average of €1,083.73 (Table 3.19). This is almost twice as much as the average weekly expenditure in very disadvantaged households (€584.53). Out of the nine commodity groups, households in very disadvantaged areas spent the least, except for alcoholic drink and tobacco (€28.19 on average per week).

Table 3.19: Average weekly household expenditure by deprivation affluence, Republic of Ireland (€)

| Commodity group | Very disadvantaged | Disadvantaged | Average | Affluent | Very affluent | All deprivation quintiles |
|---|---|---|---|---|---|---|
| Food | 101.28 | 116.96 | 125.30 | 133.28 | 138.97 | 123.28 |
| Alcoholic drink and tobacco | 28.19 | 23.47 | 26.52 | 30.28 | 31.30 | 28.00 |
| Clothing and footwear | 26.21 | 31.26 | 33.38 | 35.54 | 41.55 | 33.65 |
| Fuel and light | 34.31 | 38.04 | 41.58 | 40.92 | 38.02 | 38.56 |
| Housing | 107.91 | 125.46 | 149.77 | 178.79 | 255.71 | 164.36 |
| Household non-durable goods | 13.42 | 15.62 | 17.17 | 17.79 | 18.48 | 16.51 |
| Household durable goods | 21.73 | 25.38 | 28.68 | 30.74 | 30.84 | 27.50 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Transport | 84.88 | 118.81 | 140.59 | 144.46 | 133.17 | 124.39 |
| Miscellaneous goods, services and other expenditure | 166.60 | 239.20 | 285.05 | 315.00 | 395.67 | 281.21 |
| TOTAL | 584.53 | 734.20 | 848.04 | 926.81 | 1,083.73 | 837.47 |

Source: CSO Ireland, Household Budget Survey 2015.

Note: Levels of deprivation/affluence derived according to the Pobal HP Index[48]. Households in very disadvantaged areas spent the largest proportion of their total household expenditure on six of the nine commodity groups listed in Table 3.20. Food (17.3%); Alcoholic drink and tobacco (4.8%); Clothing and footwear (4.5%); Fuel and light (5.9%); Household non-durable goods (2.3%); and Household durable goods (3.75%).

Table 3.20: Percentage distribution of average weekly household expenditure by deprivation/affluence, Republic of Ireland

| Commodity group | Very disadvantaged | Disadvantaged | Average | Affluent | Very affluent | All deprivation quintiles |
|---|---|---|---|---|---|---|
| Food | 17.3 | 15.9 | 14.8 | 14.4 | 12.8 | 14.7 |
| Alcoholic drink and tobacco | 4.8 | 3.2 | 3.1 | 3.3 | 2.9 | 3.3 |
| Clothing and footwear | 4.5 | 4.3 | 3.9 | 3.8 | 3.8 | 4.0 |
| Fuel and light | 5.9 | 5.2 | 4.9 | 4.4 | 3.5 | 4.6 |
| Housing | 18.5 | 17.1 | 17.7 | 19.3 | 23.6 | 19.6 |
| Household non-durable goods | 2.3 | 2.1 | 2.0 | 1.9 | 1.7 | 2.0 |
| Household durable goods | 3.7 | 3.5 | 3.4 | 3.3 | 2.8 | 3.3 |
| Transport | 14.5 | 16.2 | 16.6 | 15.6 | 12.3 | 14.9 |
| Miscellaneous goods, services and other expenditure | 28.5 | 32.6 | 33.6 | 34.0 | 36.5 | 33.6 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: CSO Ireland, Household Budget Survey 2015.

[48] The Pobal Haase-Pratschke Deprivation Index is used to analyse Irish Health Survey questionnaire responses experienced by households. The Index uses census data to measure levels of disadvantage or affluence in a particular geographical area. CSO Ireland.

Looking at the proportion of total expenditure on Food consumed at home, there were no major differences between households in the lowest and highest income deciles. The largest variations in weekly food expenditure between the lowest and highest deciles can be seen for Takeaways (4.2% versus 6.2% respectively), Bread (6.2% versus 4.9% respectively) and Fresh fruit and vegetables (12.9% versus 14.5% respectively) (Table 3.21).

Table 3.21: Percentage distribution of average weekly food expenditure (excluding meals away from home and own garden produce) by lowest and highest gross household income deciles, Republic of Ireland

|  | 1st gross household income decile <252.21 | 10th gross household income decile <2163.17 | State* |
|---|---|---|---|
| Bread | 6.2 | 4.9 | 6.8 |
| Cakes, burns, pastries and biscuits | 7.4 | 6.1 | 8.2 |
| Milk, yoghurt and cheese | 10.1 | 10.2 | 12.8 |
| Uncooked meat and fish | 23.1 | 22.1 | 31.9 |
| Fresh fruit and vegetables | 12.9 | 14.5 | 16.5 |
| Sugars, confectionary and snacks | 8.5 | 8.4 | 11.3 |
| Takeaways | 4.2 | 6.2 | 7.7 |
| Soft drinks | 3.3 | 3.6 | 4.8 |

*average of all households in the State

Source: CSO Ireland, Household Budget Survey 2015.

## 3.5 Grocery Market Share

The following data provide an overview of the share of the market by each of the main supermarkets on the IoI.

### 3.5.1 Republic of Ireland

By June 2020, SuperValu held 22.9% of the RoI grocery market share, closely followed by Tesco at 21.5% and Dunnes at 20.6% (Table 3.22).

Table 3.22: Grocery Market Share, Republic of Ireland (12 weeks up to the 14ᵗʰ June 2020)

| Retailer | % |
|----------|-----|
| Supervalu | 22.9 |
| Tesco | 21.5 |
| Dunnes | 20.6 |
| Aldi | 11.9 |
| Lidl | 12.2 |
| Other retailers | 11.0 |

Source: Kantar World Panel.

### 3.5.2 Northern Ireland

Table 3.23 below provides an overview of market share in NI by each of the main supermarkets. The figures include expenditure across food, beverages, alcohol, household and health and beauty categories.

Table 3.23: Total take home grocery consumer spend – Market Share, Northern Ireland (%)

| | 52 weeks to 09/09/18 | 52 weeks to 08/09/19 | % Change in value sales |
|---|---|---|---|
| | %* | %*[49] | % |
| Total Grocers | 100.0 | 100.0 | 1.0 |
| Tesco | 35.3 | 35.0 | 0.1 |
| Sainsbury | 17.3 | 17.1 | -0.2 |
| Asda | 17.1 | 16.8 | -0.7 |
| Lidl | 5.7 | 6.1 | 7.6 |
| Other outlets**[50] | 7.9 | 8.2 | 4.7 |

Source: Kantar Worldpanel FMCG.

---

[49] *Percentage Share of Total Grocers
[50] ** Includes stores such as Boots, Greengrocers, Butchers

## 3.6 Factors influencing consumer product choice

There are many interrelated factors which may influence an individual's food choice or eating behaviours. Such factors extend beyond the biological (e.g. hunger). Factors which influence food behaviours include[51]:-

- Biological determinants: including hunger, appetite and taste
- Economic determinants: such as cost, income and availability
- Physical determinants: such as access, education, skills (e.g. cooking) and time
- Social determinants: such as culture, family, peers and meal patterns
- Psychological determinants: such as stress, mood and guilt
- Attitudes, beliefs and knowledge about food.

For those on low incomes or with limited budgets, choices as to what items to purchase can be based primarily around lowest price. Research into food poverty in NI has also reported that those on lower incomes may buy cheaper but "satisfying" food (from supermarkets such as Iceland)[52]. Low income consumers interviewed as part of this research for the Food Standards Agency reported several coping strategies they used in order to feed a household on a limited budget.

### 3.6.1 Self-reported decline in meat and dairy consumption (England, Wales and Northern Ireland)

According to the 2019 Food and You Survey[53], meat and dairy consumption continues to decline year on year. This is true despite only small proportions of survey respondents describing themselves as completely vegetarian or vegan (3% and 1%, respectively). Data on market drivers suggests that consumers' attitudes towards food impacts their purchasing behaviours. For example, a proportion of consumers are adopting a more "flexitarian" approach to their diet, due to health concerns[54]. Table 3.24 shows the decline in overall meat consumption between 2012 and 2018. Since 2014, there has been an annual decline in consumption of beef, lamb, pork, poultry and pre-cooked meats. Conversely, between 2016 and 2018 there has been a small increase in the consumption of sausages and burgers (3% and 4%, respectively).

---

[51] Eufic, 2006. The Factors That Influence Our Food Choices.
[52] FSA, 2015. Understanding Food in the Context of Poverty, Economic Insecurity and Social Exclusion.
[53] FSA, 2019. The Food and You Survey.
[54] Mintel. UK Meat-Free Foods Market Report.

Table 3.24: Proportion of United Kingdom respondents eating different types of meat at least once a week, by survey wave (%)

| | Wave 2 2012 | Wave 3 2014 | Wave 4 2016 | Wave 5 2018 |
|---|---|---|---|---|
| Cuts or portions of beef, lamb and pork | 75 | 73 | 62 | 55 |
| Chicken and turkey | 86 | 87 | 83 | 81 |
| Pre-cooked meats | 65 | 63 | 54 | 52 |
| Sausages | - | - | 29 | 32 |
| Burgers | - | - | 13 | 17 |

Source: FSA, Food and You Survey, 2019.

The Food and You survey also asked participants to what extent they agreed that *"people in the UK have to start eating less meat in order to ensure there is enough food to feed the population worldwide".*  As shown in the table overleaf, almost two-thirds (37%) agreed with this statement, almost the same proportion disagreed (36%) and the remaining 27% neither agreed nor disagreed.

The Food and You Survey data are collected in England, Wales and NI and reflects these regions combined.

### 3.6.2 Republic of Ireland

Research conducted by Bord Bia in 2018 into dietary lifestyles has also found that people in RoI are reducing their intake of meat and dairy produce.  The following data outline the drivers for reduced meat and dairy consumption.  In line with UK findings, "health" is reported as the top reason for reducing meat and dairy consumption, followed by "lifestyle change" (Table 3.25).

Table 3.25: Proportion of people who have consciously reduced meat or dairy consumption, Republic of Ireland (%)

| | Conscious reduction (Yes) |
|---|---|
| Meat* | 76% |
| Dairy** | 73% |

*N=3,028 **N=1,943

Source: Bord Bia, Dietary Lifestyles Report 2018.

The following tables provide an overview of the available data relating to extent to which consumers are changing their eating and why they are doing so. As shown below a study by Bord Bia revealed that over two thirds of people in Ireland who are reducing their intake of meat are doing so for health reasons (Table 3.26).

Table 3.26. Reasons for reducing meat consumption, Republic of Ireland (%)

| | |
|---|---|
| Health | 67% |
| Lifestyle Change | 30% |
| Environment | 30% |
| Animal Welfare | 27% |
| Save Money | 17% |
| Media Influence | 11% |

Source: Bord Bia, Dietary Lifestyles Report 2018.

As shown in Table 3.27, over half of those who noted that they were reducing their intake of dairy were doing for health reasons confirming that health is the most pertinent reason why people are modifying their diet.

Table 3.27: Reasons for reducing dairy consumption, Republic of Ireland (%)

| | |
|---|---|
| Health | 56% |
| Lifestyle Change | 31% |
| To look better | 16% |
| Animal Welfare | 16% |
| Have more energy | 16% |
| Doctor/Professional advice | 15% |
| Environment | 14% |

Source: Bord Bia, Dietary Lifestyles Report 2018.

Across the IoI there are many factors influencing food choices from economic to health concerns as well as changes in lifestyle. In both NI and RoI, consumers are consciously reducing their intake of meat and dairy produce, while only a small proportion consider themselves to be vegetarian or vegan.

# 4 Consumer Purchases and Food Intake

## 4.1 Introduction

This section provides an overview of key data relating to consumer purchases on different categories of food.  As set out below food and non-alcoholic beverages have always been a significant proportion of the household spend across the IoI.

## 4.2 Food Purchases – UK (including Northern Ireland)

The Living Costs and Food Survey (LCF) is the most significant survey on household spending in the UK. It collects information annually on spending patterns and the cost of living that reflect household budgets.  The LCF concluded that the average weekly household spending in the UK was £585.60 FYE 2019, a similar level to 2017 (£582.40), after adjusting for inflation.  The average UK household spends £61.90 per week on food and non-alcoholic beverages (equivalent to 10.6% of income).  Of this, £56.60 is spent on food (including £6.60 on meat and meat products, £5.50 on starchy carbohydrates like bread, rice and cereals, £4.40 on vegetables, and £4.10 on fruits; dairy and foods high in fat, sugar and salt). £5.50 is spent on non-alcoholic drinks (ONS, 2020[55]) (Table 4.1).

Table 4.1: Living costs and food survey food expenditure in the United Kingdom, FYE 2019

| Food commodity | Expenditure £/week |
|---|---|
| Poultry (fresh, chilled or frozen) | 2.30 |
| Beef (fresh, chilled or frozen) | 1.90 |
| Bacon & ham | -* |
| Fish and fish products | 3.00 |
| Other meats and meat preparations | 6.60 |
| Eggs | - |
| Milk | 2.20 |
| Butter | - |
| Cheese & curd | 2.10 |

---

[55] Office for National Statistics.  Living costs and food survey 2019.

| | |
|---|---|
| Other milk products | 2.30 |
| Chocolate | 2.10 |
| Bread, rice & cereals | 5.50 |
| Buns, cakes, biscuits, etc. | 3.90 |
| Pastry (savoury) | - |
| Fresh vegetables | 4.40 |
| Other tubers & products of tuber vegetables | - |
| Other preserved or processed vegetables | - |
| Potatoes | - |
| Fresh fruit | 4.10 |
| Dried fruit & nuts | - |
| Other food products | 2.70 |

* No data aviable

Source: ONS (2020), Family spending in the UK – 2018-2019.

Spending on food and housing make up 42% of total expenditure for households at the bottom decile of the income distribution, compared with 26% for those in the richest 10%. While total expenditure increases across the decile, food expenditure is disproportionate when compared to disposable income (Table 4.2) (ONS, 2020[56]).

Table 4.2: Spending on food and non-alcoholic drinks by income decile in the United Kingdom, FYE 2019

| | Food & non-alcoholic drinks | Total expenditure | Disposable income |
|---|---|---|---|
| Decile 1 | 54.1 | 27.9 | 9.5 |
| Decile 2 | 64.9 | 30.5 | 16.0 |
| Decile 3 | 66.7 | 35.7 | 20.0 |
| Decile 4 | 71.2 | 41.0 | 23.1 |
| Decile 5 | 80.8 | 49.9 | 27.4 |
| Decile 6 | 84.7 | 55.4 | 32.8 |
| Decile 7 | 83.7 | 59.8 | 37.4 |
| Decile 8 | 90.3 | 67.7 | 45.6 |
| Decile 9 | 91.2 | 73.8 | 56.7 |

---

[56] Office for National Statistics. Living costs and food survey 2019.

| | | | |
|---|---|---|---|
| Decile 10 | 100.0 | 100.0 | 100.0 |

Note: Deciles are based on household equivalised disposable income and spending and income figures are indexed to decile 10.

For example, spending on food and non-alcoholic drinks in the bottom decile is just over half that of those in decile 10, while overall spending for the bottom decile is less than one-third of that of decile 10, meaning that those at the lower end of the income distribution are spending proportionately more on food that those at the top. Table 4.3 shows that spending on food accounted for 14% of total spending in the bottom decile compared to 7.4% for the top decile. The highest decile spend twice as much as the lowest on food and non-alcoholic drinks yet their proportionate spend is half.

Table 4.3: Proportion of total spending by category and income decile in the United Kingdom, FYE 2019

| | Transport | Housing | Recreation & culture | Food & non-alcoholic drinks | Household goods and services | Restaurants and hotels | Other COICOP expenditure |
|---|---|---|---|---|---|---|---|
| Decile 1 | 10.8 | 28.3 | 9.8 | 14.0 | 6.5 | 6.9 | 23.5 |
| Decile 2 | 10.5 | 27.2 | 10.9 | 15.4 | 5.4 | 6.8 | 23.8 |
| Decile 3 | 11.7 | 25.8 | 10.7 | 13.6 | 6.1 | 7.9 | 24.2 |
| Decile 4 | 13.2 | 24.1 | 10.1 | 12.5 | 7.0 | 7.2 | 25.9 |
| Decile 5 | 12.7 | 21.0 | 13.5 | 11.8 | 6.2 | 8.8 | 26.1 |
| Decile 6 | 14.5 | 20.5 | 13.1 | 11.1 | 7.6 | 8.5 | 24.6 |
| Decile 7 | 14.9 | 20.8 | 14.1 | 10.2 | 6.6 | 8.9 | 24.5 |
| Decile 8 | 14.2 | 21.7 | 14.1 | 9.9 | 6.6 | 9.5 | 24.1 |
| Decile 9 | 15.5 | 18.5 | 15.8 | 8.9 | 6.8 | 9.5 | 25.5 |
| Decile 10 | 14.4 | 18.6 | 13.5 | 7.4 | 8.5 | 9.9 | 27.7 |

Notes:
1. Deciles are based on household equivalised disposable income.
2. Housing includes housing (net), fuel and power, mortgage interest and Council Tax and excludes mortgage capital payments.
3. 'Other' COICOP spending includes: alcoholic drinks, tobacco and narcotics, clothing and footwear, health, communication, education, miscellaneous goods and services and other expenditure items (minus mortgage interest, Council Tax and so on).

## 4.3 Northern Ireland consumers' Food Expenditure 2015 – 2019

Between 2017 and 2019, consumers in NI spent an average of £63.80 per week on food and non-alcoholic beverages. The expenditure against product categories is shown below. In 2018, NI was the only country of the UK that had food and non-alcoholic drinks in its top three spending categories (Table 4.4). NI households spent 13% of their total expenditure on food and non-alcoholic drinks compared to the UK average of 11% (ONS, 2019[57]). Earlier data show that NI households spent an average of £62.50 on food and non-alcoholic beverages in 2015-2017 compare to UK households' average spend of £57.70. Expenditure on meat, poultry and fish and associated products was constant (£17.90) between 2015-17 and 2016-18. Consumers spend on starchy carbohydrates (pasta, cereals, rice and bread) was £63.30 in 2016-18 (compared to £63.40 in 2015-170. Consumer spend on vegetables (excluding potatoes) remained consistent at £6.70; milk and dairy products' spend was consistent at £6.30 per week in 2015-18; spend was likewise consistent for fruits (£4.30) and for butter, fats and oils (£1.30) between the two time periods. Consumer spend increased by £0.20 per week on confectionery, chocolate and ice cream between 2015-17 (£3.60) and 2016-18 (£3.80). The largest increase in spend was £0.30 per week on soft drinks (£2.30 to £2.60 for 2015-17 and 2016-18, respectively).

Table 4.4: Detailed household expenditure by countries and regions of the United Kingdom

| | | | UK | NI | UK | NI |
|---|---|---|---|---|---|---|
| | | | FYE 2016-18 | FYE 2016-18 | FYE 2015-17 | FYE 2015-17 |
| Average weighted number of households (thousands) | | | 27,200 | 750 | 27,060 | 750 |
| Total number of households in sample (over 3 years) | | | 15,370 | 950 | 15,130 | 710 |
| Total number of persons in sample (over 3 years) | | | 36,350 | 2,280 | 35,740 | 1,720 |
| Total number of adults in sample (over 3 years) | | | 28,150 | 1,760 | 27,720 | 1,320 |
| Weighted average number of persons per household | | | 2.4 | 2.5 | 2.4 | 2.5 |
| Commodity or service | | | Average weekly household expenditure (£) | | | |
| 1 | Food & non-alcoholic drinks | | 58.60 | 63.20 | 57.70 | 62.50 |
| 1.1 | Food | | 53.80 | 57.60 | 53.00 | 57.40 |
| | 1.1.1 | Bread, rice and cereals | 5.30 | 5.80 | 5.20 | 5.90 |
| | 1.1.2 | Pasta products | 0.40 | 0.40 | 0.40 | 0.50 |
| | 1.1.3 | Buns, cakes, biscuits etc. | 3.70 | 4.40 | 3.60 | 4.30 |
| | 1.1.4 | Pastry (savoury) | 0.90 | 0.80 | 0.80 | 0.80 |
| | 1.1.5 | Beef (fresh, chilled or frozen) | 2.00 | 3.40 | 1.90 | 3.50 |

---

[57] ONS, (2019) Living costs and food survey 2018.

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1.1.6 | Pork (fresh, chilled or frozen) | 0.60 | 0.60 | 0.60 | 0.70 |
| | 1.1.7 | Lamb (fresh, chilled or frozen) | 0.60 | 0.50 | 0.60 | 0.50 |
| | 1.1.8 | Poultry (fresh, chilled or frozen) | 2.30 | 2.50 | 2.30 | 2.50 |
| | 1.1.9 | Bacon and ham | 0.90 | 1.30 | 0.90 | 1.20 |
| | 1.1.10 | Other meat and meat preparations | 6.20 | 7.40 | 6.10 | 7.40 |
| | 1.1.11 | Fish and fish products | 2.80 | 2.20 | 2.70 | 2.10 |
| | 1.1.12 | Milk | 2.20 | 2.60 | 2.20 | 2.50 |
| | 1.1.13 | Cheese and curd | 2.00 | 1.60 | 1.90 | 1.60 |
| | 1.1.14 | Eggs | 0.70 | 0.70 | 0.70 | 0.70 |
| | 1.1.15 | Other milk products | 2.20 | 2.10 | 2.10 | 2.20 |
| | 1.1.16 | Butter | 0.40 | 0.60 | 0.40 | 0.60 |
| | 1.1.17 | Margarine, other vegetable fats and peanut butter | 0.50 | 0.40 | 0.50 | 0.40 |
| | 1.1.18 | Cooking oils and fats | 0.30 | 0.30 | 0.30 | 0.30 |
| | 1.1.19 | Fresh fruit | 3.80 | 3.80 | 3.60 | 3.80 |
| | 1.1.20 | Other fresh, chilled or frozen fruits | 0.40 | 0.50 | 0.40 | 0.50 |
| | 1.1.21 | Dried fruit and nuts | 0.80 | 0.60 | 0.80 | 0.60 |
| | 1.1.22 | Preserved fruit and fruit based products | 0.10 | 0.10 | 0.10 | 0.10 |
| | 1.1.23 | Fresh vegetables | 4.20 | 3.30 | 4.10 | 3.30 |
| | 1.1.24 | Dried vegetables | 0.10 | 0.00~ | 0.10 | 0.00~ |
| | 1.1.25 | Other preserved or processed vegetables | 1.50 | 1.50 | 1.50 | 1.40 |
| | 1.1.26 | Potatoes | 0.80 | 1.20 | 0.80 | 1.30 |
| | 1.1.27 | Other tubers and products of tuber vegetables | 1.60 | 1.90 | 1.60 | 2.00 |
| | 1.1.28 | Sugar and sugar products | 0.40 | 0.30 | 0.40 | 0.30 |
| | 1.1.29 | Jams, marmalades | 0.30 | 0.40 | 0.30 | 0.30 |
| | 1.1.30 | Chocolate | 2.00 | 2.30 | 1.90 | 2.20 |
| | 1.1.31 | Confectionery products | 0.80 | 0.80 | 0.70 | 0.80 |
| | 1.1.32 | Edible ices and ice cream | 0.60 | 0.70 | 0.60 | 0.60 |
| | 1.1.33 | Other food products | 2.50 | 2.40 | 2.50 | 2.50 |
| 1.2 | Non-alcoholic drinks | | 4.80 | 5.60 | 4.70 | 5.10 |
| | 1.2.1 | Coffee | 0.90 | 1.00 | 0.90 | 0.90 |
| | 1.2.2 | Tea | 0.50 | 0.60 | 0.50 | 0.50 |
| | 1.2.3 | Cocoa and powdered chocolate | 0.10 | 0.10 | 0.10 | 0.00~ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.2.4 | Fruit and veg. juices (incl. fruit squash) | 1.00 | 0.90 | 1.00 | 0.90 |
| 1.2.5 | Mineral or spring waters | 0.40 | 0.40 | 0.30 | 0.40 |
| 1.2.6 | Soft drinks (incl. fizzy and ready to drink fruit drinks) | 1.90 | 2.60 | 1.90 | 2.30 |

Source: ONS (2020), Family spending workbook 3: Expenditure by region; ONS (2018), *Detailed household expenditure by countries and regions: Table A35.*

Note: The commodity and service categories are not comparable to those in publications before 2001-02. This table is based on a three-year average.


## 4.4 Consumer Food Expenditure – Republic of Ireland

In RoI, the Household Budget Survey gathers detailed information on household and individual income, expenditure and living conditions. The estimated average weekly expenditure in 2015-2016 for all households in the State was €837.47. This is 3.3% higher than the estimated figure of €810.61 in 2009-2010. As a proportion of total household expenditure, food fell from 16.2% to 14.7% between 2009-10 and 2015-16 (Table 4.5). Food spend has been falling steadily since 1980, when food represented the largest proportion of total household expenditure at 27.7%. However, by 2015-2016 this had fallen to 14.7%.


Table 4.5: Changes in distribution of total household expenditure on food in the Republic of Ireland (1980 to 2015-2016)

| | 1980 | 1987 | 1994-95 | 1999 -2000 | 2004-05 | 2009-10 | 2015-16 |
|---|---|---|---|---|---|---|---|
| Food Expenditure (average) | 27.70% | 25.20% | 22.70% | 20.40% | 18.10% | 16.20% | 14.70% |

Source: Central Statistics Office (2017), Household budget survey 2015-16 – Household expenditure.


Average household spend on food differs by deprivation status. The average spend is €123.80; with the least affluent spending €101.28, which is 37.21% less than the richest quintile (€138.97)[58] (Table 4.6).


Table 4.6: Average weekly household expenditure by deprivation / affluence in the Republic of Ireland

| | Very disadvantaged | Disadvantaged | Average | Affluent | Very affluent | All deprivation quintiles |
|---|---|---|---|---|---|---|
| Food Expenditure | 101.28 | 116.96 | 125.30 | 133.28 | 138.97 | 123.28 |

Source: CSO (2017), Average weekly household expenditure by deprivation/affluence.

---

[58] CSO, 2017. Household budget survey 2015-16 – Household expenditure.

There are differences in expenditure patterns by levels of deprivation (as defined by the Pobal HP Index). In 2015-16, households in very affluent areas spent 14.9% of their food budget on fresh fruit and vegetables. Households in very disadvantaged areas spent proportionately the most on bread (5.8%), sugars, confectionery and snacks (9.5%), takeaways (8.1%) and soft drinks (4.3%) while spending the least on milk, yoghurt and cheese (9.5%) and fresh fruit and vegetables (11.2%). Households in very affluent areas spent the least on bread (4.9%), cakes, buns, pastries and biscuits (6.2%), uncooked meat and fish (23.1%) and sugars, confectionary and snacks (8.6%)[59] (Table 4.7).

Table 4.7: Percentage distribution of average weekly food expenditure (excluding meals away from home and own garden produce) by deprivation / affluence: the Republic of Ireland, 2015-16

|  | Very disadvantaged | Disadvantaged | Average | Affluent | Very affluent |
|---|---|---|---|---|---|
| Bread | 5.8 | 5.6 | 5.6 | 5.2 | 4.9 |
| Cakes, buns, pastries & biscuits | 6.3 | 6.8 | 6.7 | 6.5 | 6.2 |
| Milk, yoghurt & cheese | 9.5 | 10.4 | 10.2 | 10.2 | 10.2 |
| Uncooked meat & fish | 22.7 | 23.1 | 23.0 | 22.5 | 20.7 |
| Fresh fruit & vegetables | 11.2 | 12.8 | 12.9 | 13.4 | 14.9 |
| Sugars, confectionary & snacks | 9.5 | 8.1 | 8.7 | 9.0 | 8.6 |
| Takeaways | 8.1 | 4.8 | 5.3 | 5.8 | 6.8 |
| Soft drinks | 4.3 | 3.9 | 3.6 | 3.6 | 3.6 |

Source: Central Statistics Office (2017)

In 2009-10, the Household Budget Survey found that the proportion of total household expenditure that related to food dropped from 18.1% in 2004-2005 to 16.2% in 2009-2010. Indeed, expenditure on bread represented the only main difference between households in lowest and highest gross income deciles, otherwise there were no notable differences in the proportions of the total expenditure on food consumed at home between households in the lowest and highest deciles. A full dataset of food expenditure by household income decile and product category is available in the Household Budget Survey 2009-10[60]. Expenditure on bread accounted for 6.4% of the total expenditure on food consumed at home in lowest income decile households compared with 4.7% for households in the highest income decile.

---

[59] CSO, 2017. Household budget survey 2015-16 – Household expenditure.

[60] CSO, 2012. Household budget survey 2009-10.

## 4.5 Household food expenditure on the Island of Ireland

The above data illustrate how food expenditure is decreasing year on year and the least affluent households are spending disproportionately more of their income on provisioning their household. In addition, RoI data demonstrate that lower-income households spend proportionately more on bread, soft drinks and confectionery and less on fruit, vegetables and meat than their higher income counterparts. Unfortunately, the equivalent detail is not available for NI; there isn't an NI-specific dataset which includes expenditure by income decile or quintile due to the smaller sample size.

## 5.6 Online shopping

In the second quarter of 2018, the weekly value of online sales from food stores in the UK was valued at £179 million, up from £141.9 million in 2016[61]. In 2018, the UK accounted for 7.9% of the global online shopping market sector. Despite, the continued growth of online grocery shopping in 2019, it accounted for less than 10% of all grocery shopping in the UK[62]. However, it is anticipated that online grocery shopping in the UK will grow by 33% in 2020 to reach an estimated value of £16.8 billion, up from £12.7 billion in 2019[63]. Kantar noted that in the UK, online grocery sales increased by 91% in June 2020, with around 5.7 million shoppers in the UK using online channels[64]. No NI specific data on online grocery shopping was available.

There is relatively scarce data available on the value of the online grocery market in Ireland but market intelligence from a number of sources show that online grocery sales have been increasing steadily over the past ten years. For example, Statistica note that the proportion of people in Ireland who have purchased groceries online increased from 2% in 2009 to 9% in 2019[65]. The online grocery market then grew more rapidly in 2020, specifically during the COVID 19 lockdown. Data from Kantar indicates that during the 12 weeks to 12th July 2020, online grocery shopping increased by 123% compared to the same period in 2019. An additional 75,000 shoppers purchased groceries online between May 2020 and July 2020, spending €38.9 million[66].

The latest data on the levels of online food shopping shows a dramatic increase in online grocery shopping in March 2020 when the world was in the midst of the COVID-19 pandemic and the UK and

---

[61] Statista, 2019. Average value of weekly online sales in predominantly food stores in the United Kingdom (UK).
[62] Statista, 2020. Where the Most Groceries Are Bought Online.
[63] Internet Retailing, 2020. "Online grocery sales grow 33% in 2020 as shopping habits shift permanently, consumers tell Mintel".
[64] Kantar, 2020. UK online grocery growth clicks up as lockdown trends continue.
[65] Statista, 2020. Share of individuals who purchased food or groceries online in Ireland.
[66] Kantar, 2020. Ireland returns to normality but lockdown habits stick.

Ireland went into lockdown[67]. For example, the value of online grocery sales increased by 83% in the UK during March 2020[68].

### 5.6.1 Online shopping in the European Union and the Unites States

The value of the online grocery shopping in the Unites States generated sales in the region of $28.68 billion in 2019, with sales forecast to reach$59.5 billion by 2023[69]. Table 4.8 provides an overview of the proportion of global online grocery shopping for selected European and world wide countries.

Table 4.8: Percentage of total global online grocery sales in 2018

| | % |
|---|---|
| Germany | 2 |
| Spain | 2 |
| Denmark | 3 |
| Netherlands | 5 |
| France | 6 |
| UK | 7 |
| USA | 4 |
| Japan | 8 |
| Taiwan | 9 |
| China | 14 |
| South Korea | 19 |

Source: Kantar, 2019. Global online FMCG sales grew by 20% in 2018.

As shown above, the UK accounts for the greatest proportion of global online grocery sales in Europe. While the UK has a population of 66.3 million, it accounted for 7.2% of global sales compared to the United States at 4.4% with a population of 327.2 million

---

[67] Ibid 99.
[68] Statista, 2020. Percentage change in monthly internet food sales value in the United Kingdom (UK).
[69] Statista, 2020. Online grocery shopping sales in the Unites States.

# 5 Niche Markets

## 5.1 Introduction

This section provides a summary of available data relating to the market for free-from foods, organic foods, and clean label food.

## 5.2 Free-from Foods

Free-from foods are foods that are manufactured and targeted specifically at consumers who suffer from food intolerances and/or allergies, or who are following avoidance diets for other reasons. Typically, this includes foods that are free from gluten, dairy, nuts or eggs. Table 5.1 provides an overview of the most common foods that are avoided across the IoI[70].

Table 5.1: Types of food/ingredients Republic of Ireland (1350 internet users aged ≥ 16 years) and Northern Ireland (650 internet users aged ≥ 16 years) consumers avoid as party of a general healthy lifestyle (2017)

| | % of ROI Respondents | % of NI Respondents |
|---|---|---|
| Soya | 7 | 5 |
| Lactose | 7 | 4 |
| Gluten | 6 | 5 |
| Dairy | 6 | 4 |
| Red meat (eg. Beef/pork) | 6 | 4 |
| Wheat | 5 | 5 |
| Fish or shellfish | 4 | 4 |
| Nuts | 4 | 3 |
| Celery | 4 | 3 |
| Eggs | 2 | 2 |
| Poultry | 3 | 2 |
| Other | 4 | 2 |

Source: Bord Bia, 2011

---

[70] INDI. Food Allergies and Intolerances.

In the RoI, statistics show that approximately 5% of children and 3% of adults actually suffer from food allergies[71]. However, some studies suggest that 38% of those who buy gluten-free products in the RoI do so as part of an overall healthy lifestyle rather than due to a specific allergy or intolerance[72]. Table 5.2 sets out data relating to food avoidance due to food allergies and intolerances.

Table 5.2: Types of food/ingredients avoided because they/a member of household has a confirmed or suspected food allergy/intolerance: Republic of Ireland (1350 internet users aged ≥ 16 years) and Northern Ireland (650 internet users aged ≥ 16 years) consumers (2017)

|  | % of ROI Respondents | % of NI Respondents |
|---|---|---|
| Gluten | 11 | 8 |
| Dairy | 10 | 8 |
| Wheat | 9 | 8 |
| Lactose | 9 | 8 |
| Nuts | 7 | 4 |
| Fish or shellfish | 6 | 4 |
| Eggs | 3 | 3 |
| Soya | 3 | 2 |
| Celery | 2 | 2 |
| Red meat (eg. Beef/pork) | 2 | 1 |
| Poultry | 2 | 1 |
| Other | 4 | 2 |

Source: Bord Bia, 2017.


**5.2.1 Key segments of the free-from food market**

A Bord Bia report[73] notes that the top 5 types of food that are avoided due to a confirmed or suspected food allergy /intolerance are:

1.  **Gluten-free / Wheat-free:** Gluten-free is a leading sub-category within the free-from market. Snacks are the largest sub-category of food claiming to have low/no/reduced gluten content. This has seen a trend rise in ingredients such as nuts, seed and legumes which are naturally low in gluten. Pasta has seen its market shrink internationally in recent years with consumers less eager to buy between 2011-2015. Gluten-free pasta has since been launched in RoI and the

[71] INDI. *Food Allergies and Intolerances.*
[72] Bord Bia website.
[73] Consumer Insight into Gluten Free in Ireland Bord Bia (2017)

UK (since 2017). Cereals have also struggled in the free-from era, as high levels of sugar and the consumption with milk (lactose) have put health-conscious consumers off.

Wheat products are not marketed as gluten-free due to the presence of gluten in wheat. However it is possible for people to have a specific allergy to wheat as opposed to coeliac disease or another intolerance to gluten. Consumers who are specifically intolerant to wheat are also known to eat some gluten-free foods. A study from Bord Bia (April 2017[74]) found that nearly 8 in 10 (78%) people follow a gluten-free diet even though they have not been diagnosed as coeliac. Some 38% of these say that do not have an intolerance to wheat at all but, perceive gluten-free to be a healthier lifestyle choice.

2. **Dairy:** Dairy is the most widely bought free-from food/ingredient bought in RoI an NI, with 51% of consumers having bought substitutes such as coconut milk or soya cheese in the last six months. 10% of consumers said they bought a dairy substitute due to a food allergy/intolerance in their household, while 6% said they bought a substitute as part of a general healthy lifestyle.

3. **Lactose:** Lactose intolerance is a digestive problem caused by an inability to digest lactose, a sugar found in milk and dairy products. Lactose-free food products do not necessarily mean they are dairy-free as lactose is often removed from milk-based products. In the same study, 9% avoided lactose due to a food allergy/intolerance in their household with 7% avoiding it for a healthy lifestyle.

4. **Nuts:** 7% of consumers in Ireland avoid nuts due to a food allergy/intolerance in their household, while 4% tend to avoid nuts as part of a general healthy lifestyle.

5. **Others (including Soya):** Soya is the most avoided food type by Irish consumers as part of a general healthy lifestyle, with 7% of respondents saying they avoid the ingredient. This is likely due to the perception of soya as a highly-processed food/ingredient because it is a genetically modified product. In comparison, only 3% of respondents said they avoid soya due to a food allergy/intolerance in their household.

### 5.2.2 Free-from foods on the island of Ireland

There is no NI-specific data on the free-from market. UK data shows that the retail value of free-from products is growing year on year. Statistica estimated that the market increased from £221M in 2010

---

[74] Bord Bia. "One in five Irish people are regular gluten free shoppers." Bord Bia Press Release 18 April 2017.

to £470M in 2015 and is predicted to increase further to £673M by the end of 2020[75]. However, Mintel reported that all major retailers have now added new products and upgrades to their free-from ranges. Therefore, the volume and range of free-from food is expected to continue to increase for the foreseeable future.

Mintel have estimated that the UK free-from food and drink retail market was worth £934 million in 2019, up from £438 million in 2016, (£261M more than the Statistica predictions for 2020). Mintel also noted that the dairy-/lactose-free segment continued to outpace gluten-/ wheat-free in 2019, with sales estimated to reach £517 million and £416 million respectively[76]. Although only 1% of the UK population are estimated to be affected by coeliac disease, 55% of the market is made up of non-sufferers. More than half the UK population is now buying free-from food products (Kantar World panel[77]). It was estimated that in 2015 the UK accounted for 7% of global gluten-free Bakery sales.

Whilst annual data relating to the free-from market in RoI was not available there is data to show that the market is growing. In 2017 the gluten-free market in RoI was estimated to be worth €66 million, a 36% increase from 2016 (Kantar World Panel). Recent research conducted by Bord Bia also found that 1 in 5 consumers in the RoI now buys gluten-free food regularly[78].

### 5.2.3 Free-from foods in the EU and USA

Whilst data on the free-from market across Europe and the USA is also limited and sporadic, it does show that the market is growing and free-from foods are becoming mainstream health food products. For example, the gluten-free products market size in North America was estimated to be between $4.3 billion (2019) and $11.73 billion (2018[79]), and is estimated to reach $7.5 billion by 2027[80].

In the EU, the free-from food market is made up predominantly of gluten-free and dairy-free products as large numbers of people reduce their consumption of gluten and dairy. Although the dairy-free market was once dominated by soya milk, other nut- and plant-based milks have become consumers' milk alternatives of choice. A greater array of dairy-free products has also paved the way for more consumer choice and greater acceptance, with extremely high interest in new products such as non-dairy ice cream. The gluten-free market is also increasingly accessible to the general consumer, with gluten-free per capita forecasts predicting a strong uptake in gluten-free purchases, particularly in the Nordic countries and the UK[81]. Free-from food sales are predicted to grow in Europe as more and more supermarkets launch their own free-from private labels and food companies reformulate or recreate

[75] Statista, 2016. Free-from food sales forecast in the United Kingdom (UK) from 2010 to 2020.
[76] Mintel, 2020. UK Free-From Foods Market Report.
[77] Kantar, 2017. Inflation continues as 'free from' booms.
[78] Bord Bia. "One in five Irish people are regular gluten free shoppers." Bord Bia Press Release 18 April 2017.
[79] Statista, 2019. Gluten-free food sales value in the Unites States from 2014 to 2025.
[80] Allied Market Research, 2020. Gluten-Free Products Market by Type.
[81] Statista, 2016. Share of people who are reducing dairy consumption in Europe in 2015.

their products to become free-from[82]. Euromonitor estimated that in 2017, free-from food sales in Western Europe and Eastern Europe were 11.7% and 8.7%, of the food market respectively. In 2019 the value of the free from market in the UK was estimated to be £470m[83].

Statistica have also estimated that gluten-free per capita spending in leading markets in Europe will increase between 2015 and 2020. By 2020 Finland was forecast to spend the most on gluten-free products at $34.5 per person, followed by Norway at $28.5[84]. There is no specific data relating to spend on all free-from foods or spend per capita in either the UK or RoI.


## 5.3 Plant based diets

There are an estimated 628 million vegetarians in the world, over half of whom are in India[85.] There is no definitive data source on the number of people in IoI who follow a plant-based diet. However, there is an increasing body of evidence to suggest that plant-based diets (vegetarianism and veganism) are becoming more popular. According to the Vegan Society, veganism in the UK quadrupled between 2014 and 2019[86] (from 150,000 to 600,000). In 2018, Bord Bia estimated that around 8% of the population in Ireland are vegetarian, whilst 3.5% are vegan[87]. Based on mid-year population estimates[88], this would equate to around 393,720 vegetarians and 172,252 vegans in RoI. Furthermore, a Bord Bia survey (2019) found that 2% of respondents had a meat free substitute evening meal in the previous week and 1% reported having a vegan meal during the previous week[89] (Table 5.3).

Whilst no specific data was found on the proportion of vegetarians or vegans in NI, a survey published by Waitrose and Partners (2018) found that 13% of the UK public identified themselves as vegetarian, with a further 21% stating that they were flexitarian (or, occasional meat eaters)[90]. Another survey found the rate of vegetarianism in the UK to be much lower at 7%, with 2% of respondents reporting to be vegan[91]. Based on mid-term year estimates for NI (2019) this would equate to between 132,559 and 26,181 vegetarians and around 37,874 vegans [92].

[82] Statista, 2019. Free-from foods in Europe – Statistics and Facts.
[83] Ibid, 63.
[84] Statista, 2016. Gluten-free per capita spending forecast in leading markets in Europe in 2015 and 2020.
[85] Evolving Trends in Food and Nutrition. Euromonitor, 2020.
[86] The Vegan Society website.
[87] Bord Bia, 2018. Dietary Lifestyles Report.
[88] CSO. Populations and Migration Estimates 2016 – 2019.
[89] Bord Bia, 2020. What Ireland Ate Last Night.
[90] Waitrose & Partners. Food and Drink Report 2018-2019.
[91] Finder, 2020. UK Diet Trends 2020.
[92] Northern Ireland Statistics and Research Agency (NISRA). 2019 Mid Year Population Estimates for Northern Ireland.

Table 5.3: Estimated rates (% of respondents) of vegetarian and veganism on the island of Ireland

|  | ROI | NI |
| --- | --- | --- |
| Vegetarian | 8 | 3·5 |
| Vegan | 7 | 2 |

Sources: Bord Bia, 2018. Dietary Lifestyles Report; Finder, 2020. UK Diet Trends 2020; NISRA, 2019 Mid Year Population Estimates for Northern Ireland.

The increase in the proportion of the population who have identified themselves as vegan or vegetarian has also been mirrored in the demand for, and the range of, vegan and vegetarian foods that are available.  For example, Ocado reported that in the UK, the sales of vegan foods increased by 1,678% between 2015 and 2016[93].  Furthermore, one in six (16%) new food products launched in the UK were vegan, compared to just 8% in 2015[94].

### 5.3.1 United States and Europe

As is the case in Ireland and the UK, there are no reliable statistics on the number of vegetarians and vegans in Europe[95].  However, data from Statistica suggests that in 2016 around 5% of Europeans considered themselves vegetarian or vegan [96].  There also appears to be considerable variation in the rates across Europe with 6.4% in Italy (2019)[97], 1.9% in France (2017)[98], 10% in the Netherlands (2019)[99] and 5.3% in Germany (2016)[100].

Due to the different data collection processes and the years of fieldwork, is not possible to provide a comparative analysis of the rate of vegetarian and veganism across EU countries.  Vegetarian and veganism has been increasing steadily across Western Europe over the last number of years therefore specific attention should be paid to the date of data collection.

In 2018, Statistica estimated that 6% of the population in the United States are vegetarian with both vegetarian and vegan diets becoming more popular.  Whilst 2.5% of Americans over the age of 50 consider themselves vegetarian, 7.5% of Millennials and Gen Z (i.e. those under the age of 40) have given up meat.  The rate of veganism in the United States is also double that for younger generations

[93] The Guardian, 2017. Tofu turkey with all the trimmings? Britain carves out a meat-free Christmas.
[94] Mintel, 2019. #Veganuary: UK overtakes Germany as world's leader for vegan food launches.
[95] European Vegetarian Union. Statistics on Vegetarian Lifestyles and Products.
[96] Statista, 2016. Share of people who follow a vegetarian diet worldwide.
[97] Statista, 2019. Share of vegetarian and vegan individuals in Italy.
[98] Le Monde, 2017. Un tiers des ménage français sont « flexitariens », 2 % sont végétariens.
[99] Statista, 2020. Share of vegetarians and flexitarians in the Netherlands.
[100]Paslakis, G. et. Al (2020) Prevalence and psychopathology of vegetarians and vegans – Results from a representative survey in Germany  Scientific Reports volume 10, Article number: 6840 (2020).

compared to older Americans[101]. In 2012, a Gallop poll found that only 4% of Americans considered themselves as always vegetarian and only 1% vegan, whilst another poll in 2014 found that 2% of Americans identified themselves as vegan[102,103].

Whilst the data on the prevalence of vegetarian and veganism in Europe and the United States is inconsistent, overall it does suggest an upward trend. Data relating to the sales of plant-based foods also shows significant increases over the last few years. For example, one in ten (9%) new food products launched in Europe in 2018 had a vegan/no animal ingredients claim, up from 5% in 2015.[104] The Good Food Institute (GFI) also shows that retail sales of plant-based foods increased by 29% in the US between 2017 and 2019, from €3.9bn to €5 bn105. Milk alternatives are the highest selling segment of plant-based foods, valued at €2bn in 2019[106].

## 5.4 Organic Food Sector

Broadly speaking, organic food is food that has been produced without the use of man-made fertilisers, pesticides; growth regulators and livestock feed additives[107]. Standards for organic food are set out in European law and it must be fully traceable.

### 5.4.1 United Kingdom and Northern Ireland

The organic market in the UK continues to experience steady growth. Sales of organic food and drink increased by 2.5% in 2019 to £2.54Bn[108]. That means almost £45m per week is spent on organic food in the UK and that organic accounts for around 1.5% of all food and drink sales. Whilst data relating to organic food sales specifically in NI is limited, the Soil Association reported that NI-based Soil Association Certification licensees' turnover increased by 22% in 2018. There are now 220 organic producers and processors in NI, an increase of 7.8% on 2016.

### 5.4.2 Republic of Ireland

The proportion of land in RoI that is farmed organically is still also relatively small compared to the EU average (7.5%) however it is comparable with the UK where 2.64% of UAA was organic[109] in 2018. The area under organic farming in RoI is very small but has been steadily increasing over the past decade

[101] Statista, 2019. Share of consumers who consider themselves vegan or vegetarian in the United States.
[102] Sentient Media, 2019. How Many Vegans Are There Really in the U.S.?
[103] The Vegetarian Resource Group, 2012. How Often Do Americans Eat Vegetarian Meals? And How Many Adults in the U.S. Are Vegetarian?
[104] Mintel, 2019. #Veganuary: UK overtakes Germany as world's leader for vegan food launches.
[105] The Good Food Institute. Plant-Based Markey Overview.
[106] Soil Association, 2020. Organic Market Report.
[107] Soil Association website. What is Organic?
[108] Soil Association, 2020. Organic Market Report.
[109] Eurostat. Area under organic farming (2000 onwards).

and doubled from 1.16% of all Utilised Agricultural Area (UAA) in 2014 to 2.63% in 2018, as shown in Table 5.4.  There are currently 2,127 organic operators in the RoI of which over 1,700 are farmers with the remainder comprising of processors, retailers, distributors and importers[110].  A survey conducted for Bord Bia[111] found that in 2019, 26% of people in the RoI bought organic food wherever possible. However, spend on organic food per capita in RoI was still quite low compared to other EU countries.

Table 5.4: Percentage of Utilised Agricultural Area that is organic in the Republic of Ireland

|  | % Utilised Agricultural Area |
|---|---|
| 2014 | 1.16 |
| 2015 | 1.65 |
| 2016 | 1.72 |
| 2017 | 1.66 |
| 2018 | 2.63 |

Source: Eurostat. Area under organic farming (2000 onwards).

Therefore, although the data is limited, it does indicate that the sale of organic food is increasing in NI as are the number of organic food and drink producers.

### 5.4.3 Worldwide

The global organic food market is valued at between $124billion[112] and $165.5 Bn[113], and all data sources have projected that the market will grow at a Compound Annual Growth Rate (CAGR) of 16% reaching $262 billion by 2022.  Organic fruit & vegetables make up the bulk of the organic food market, followed by processed food, dairy products, pulses & food grains, and beverages segments[114].  The United States accounted for 45% of global organic food sales in 2018 ($95Bn)[115].

The organic food market is also well established in Europe and in 2017 sales were in the region of €37.3bn, an increase of around 5.4% since 2015.  Germany had the greatest proportion of sales of organic foods in Europe, accounting for 8% of global sales.  Germany is the leading market for organic products in Europe with an 11.4% share of the European market organic sales followed by France with

---

[110] DAFM, 2019. Review of Organic Food Sector and Strategy for its Development 2019 -2025.
[111] Bord Bia, 2020. What Ireland Ate Last Night.
[112]  DAFM, 2019. Review of Organic Food Sector and Strategy for its Development 2019 -2025.
[113] Statista, 2019. Forecasted market value of organic food and beverage markets worldwide.
[114] Ibid 87.
[115] Statista, 2020. Retail sales share of organic food worldwide.

7.3 %[116].  Table 5.5 provides an overview of the spend per capita on organic food for European Countries.

Table 5.5: Spend per capita on organic food for European countries

|  | Spend per capita: Euro |
|---|---|
| Denmark | 312 |
| France | 136 |
| Germany | 132 |
| Ireland | 43 |
| Italy | 58 |
| Netherlands | 75 |
| Norway | 79 |
| Portugal | 2 |
| Spain | 42 |
| Sweden | 231 |
| UK | 38 |

Source: FiBL Statistics. Data on organic agriculture world-wide.

As shown above, whilst Germany overall spent more on organic food than other European countries, per capita, Denmark and Sweden spent the most at €312 and €230 respectively.  Spend on organic food in the UK and Ireland was amongst the lowest in Western Europe at €38 and €43 per capita, respectively.  Data on total spend on organic food for all European Countries was not available. However Table 5.6 sets out data available for European countries as well as Australia, China, Japan Canada and the United States.

---

[116] Statista, 2020. Organic food market in Europe – Statistics and Facts.

Table 5.6: Organic consumption per capita and country value of retail sales in 2018

| Country | Organic per capita consumption [€/person] | Organic retail sales [€M] |
|---|---|---|
| **Europe** | | |
| **France** | 136 | 9'139.00 |
| **Germany** | 131.77 | 10'910.00 |
| **Ireland** | 43.14 | 206.40* |
| **Italy** | 57.6 | 3'483.00 |
| **United Kingdom** | 38.28 | 2'536.98* |
| **Other** | | |
| **Australia** | 48.59 | 1'223.65 |
| **Canada** | 84.11 | 3'118.60 |
| **China** | 5.54 | 8'087.37 |
| **Japan** | 11.15 | 1'418.71 |
| **United States** | 124.52 | 40'558.85* |

Source: FiBL Statistics. Data on organic agriculture world-wide.

As set out above, the United States has one of the highest spend per capita on organic food and the highest spend at a country level.

## 5.5 Clean Label Foods

Clean label food is an industry and consumer term for food that has been made using as few ingredients as possible, whilst making sure that those ingredients that are used are wholesome and with no artificial ingredients or synthetic chemicals (i.e. natural or organic)[117].  Organic foods are considered to be one element of the wider clean label food market.  Mintel defined clean label foods as having five attributes[118]:

---

[117]  Report Linker, 2019. Clean Label Ingredients Market by Type Application, and Form: Global Opportunity Analysis and Industry Forecast 2019-2026.
[118] Food Navigator website.

- No additives/preservatives
- GMO free
- Organic
- Wholegrain
- All-natural products

The clean label market is difficult to define as many of the terms used in clean label foods are not recognised or defined by the EU.  For example, the term 'natural' is not protected under EU or UK law[119].  Whilst, there is very little information available on the size or value of the clean label market in RoI or NI, market intelligence shows that the clean label ingredients market globally was valued at $38.8 billion in 2018, and is projected to reach $64.1 billion by 2026, growing at a CAGR of 6.8% from 2019 to 2026[120].

## 5.7 Non-alcoholic drink consumption on the Island of Ireland

The consumption of soft drinks, including bottled water, soda, diluteables, and juices, has seen a change in the amount of sugar being added in pace with consumer concerns over selecting beverages that are lower in sugar.  Table 5.7 shows soft drink consumption per capita per annum in the UK and RoI between 2012 and 2017 (no NI specific data on soft drink consumption was available).  Overall, the UK consumes more soft drinks (15% more) than the RoI per capita.  Soft drinks include carbonates, still drinks, iced and 'ready to drink' tea drinks, iced and 'ready to drink' coffee drinks, sports drinks, energy drinks, flavoured water, enhanced water, packaged water, squash/syrups, fruit powders, juice, and nectars (25-99% juice).  Total soft drink consumption per capita in the UK decreased by 2.5% between 2012 and 2017, while the RoI saw a 2.6% increase in the same period.

Table 5.7: Litres of soft drink consumption per capita per annum in the Republic of Ireland and the United Kingdom (2012-17)

|  | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| ROI | 165.5 | 166 | 167.2 | 167.2 | 168.1 | 170 |
| UK | 206 | 206.1 | 203.6 | 201.7 | 202.7 | 200.8 |

Source: UNESDA, 2018. Global Data Soft Market Insights - 2018 Cycle [121]

---

[119] Virtual College, 2019. Customer Confusion over Clean Labelling.
120 Clean Label Ingredients Market by Type Application, and Form: Global Opportunity Analysis and Industry Forecast 2019–2026 (December, 2019).
[121] UNESDA, 2018. Global Data Soft Market Insights - 2018 Cycle

In both the UK and the RoI, packaged water has experienced the highest increase in consumption of all the soft drinks and juice/nectars have seen the largest decrease (Tables 5.8 & 5.9).  Packaged water consumption has increased by 30% per capita in the UK from 26.6 litres to 38.2 litres, and by 36% from 33 litres to 51.8 per capita in RoI.  The consumption of dilutables has decreased by 16% in the UK and by 15% in the RoI between 2012 and 2017.  Juice and nectar drinks have also seen a decrease in consumption per capita by just under a quarter (23%) in the UK and by a third (33%) in the RoI.  Overall, the UK consumes more litres per capita of soft drinks, dilutes, and juice/nectars and the RoI consumes more bottled water.  The UK consumes more than double the amount of juices and nectars when compared to the RoI.

Table 5.8: Annual consumption of different types of soft drinks in the United Kingdom (litres per capita)

|  | Soft drinks | Packaged water | Dilutables | Juices & Nectars |
|---|---|---|---|---|
| 2017 | 104.4 | 38.2 | 41.9 | 16.3 |
| 2016 | 106.1 | 36.7 | 43.1 | 16.9 |
| 2015 | 106.4 | 33.6 | 44.3 | 17.5 |
| 2014 | 107.3 | 30.8 | 47.1 | 18.4 |
| 2013 | 108.7 | 28.0 | 49.5 | 19.9 |
| 2012 | 108.5 | 26.6 | 50.1 | 20.8 |

Source: UNESDA, 2018. GlobalData Soft Market Insights - 2018 Cycle

Table 5.9: Annual consumption of different types of soft drinks in the Republic of Ireland (litres per capita)

|  | Soft drinks | Packaged water | Dilutables | Juices & Nectars |
|---|---|---|---|---|
| 2017 | 85.2 | 51.8 | 25.2 | 11.6 |
| 2016 | 85.3 | 48.0 | 26.7 | 10.9 |
| 2015 | 86.0 | 44.8 | 27.5 | 9.6 |
| 2014 | 88.0 | 41.3 | 28.3 | 8.8 |
| 2013 | 89.6 | 35.9 | 29.7 | 8.1 |
| 2012 | 91.3 | 33.0 | 29.6 | 7.8 |

Source: UNESDA, 2018. Global Data Soft Market Insights - 2018 Cycle

Across the IoI, the overall consumption of sugary drinks has decreased over the years.  The RoI and NI both saw significant decreases in the daily consumption of sugary drinks consumption in 2018 when

compared to the previous years (Table 5.10).  In both the RoI and NI, a larger proportion of males consume sugary drinks daily compared to females.  The change in consumption patterns is likely a result of both the Soft Drinks Industry Levy in the UK and the Sugar Sweetened Drinks Tax in the RoI, as well as an increased awareness around the physiological harms of excessive sugar consumption[122,123].

Table 5.10: Daily consumption of sugary drinks on the island of Ireland, the Republic of Ireland and Northern Ireland

|  | RoI (%) | NI (%) |
|---|---|---|
| 2015 | 15 | 19 |
| 2016 | 14 | 18 |
| 2017 | 16 | N/A |
| 2018 | 9 | 10 |

Sources: Sources: HRB, 2013. National Alcohol Diary Survey ⁱⁱ; GOV.IE, 2019. Healthy Ireland Survey ⁱⁱ; (https://www.ninis2.nisra.gov.uk/public/PivotGrid.aspx?ds=9576&lh=63&yn=2010-2017&sk=134&sn=Health%20and%20Social%20Care&yearfilter= )

In addition to the additional taxes that have been placed on sugary drinks in both RoI and NI, data from *safe*food also suggest that consumers are increasingly concerned about sugar levels.  As shown below, from 2013 to 2017, consumers have become four times more likely to identify sugar intake as their main issue of concern when selecting a beverage (Table 5.11).  The British Soft Drinks Association's Annual Report (2019)[126] identified that sugar intake from soft drinks in the UK have decreased 30.4% from 2015 to 2019.

Table 5.11: Percentage of consumers reporting that sugar is a main concern when selecting food and beverage

|  | IoI (%) | RoI (%) | NI (%) |
|---|---|---|---|
| 2013 | 3 | 3 | 3 |
| 2014 | 5 | 6 | 1 |
| 2015 | 6 | 7 | 6 |
| 2016 | 7 | 7 | 8 |
| 2017 | 12 | 11 | 14 |

Source: *safe*food Safetrak surveys 2012-2017 (https://www.safefood.eu/Publications/Market-research/Safetrak.aspx )[127]

[122] HM Treasury, 2018. Soft Drink Industry Levy
[123] Revenue, 2019. Sugar Sweetened Drinks Tax
[124] Ibid ²⁴³.
[125] Ibid ²⁴⁴
[126] The British Soft Drinks Association, 2019. Annual Report. Changing Tastes
[127] Safefood Safetrak surveys 2012-2017: https://www.safefood.eu/Publications/Market-research/Safetrak.aspx I

# 6 Major Foods Price Trends

## 6.1 Introduction

The following section sets out the data relating to trends in the price of major food groups over the past ten years for RoI and NI.  The major food groups are considered to be[128]:

- Bread, cereal and potatoes

- Fruit and vegetables

- Dairy (e.g. Milk, cheese and yoghurt)

- Proteins (Meat, poultry, fish and alternatives); and

- Other foods (including fat spreads, oils, biscuits, cakes, chocolate, confectionery and savoury snacks.)

There are a number of factors that influence the price of food including supply and demand, inflation, currency exchange rates and the weather.  Where possible we have presented Harmonised Indices of Consumer Prices (HICP) to facilitate for international comparisons of consumer price inflation.  The Consumer Price Index is a measure of commonly purchased consumer goods, including food.

## 6.2 Republic of Ireland Food Prices

Data from the Central Statistics Office (CSO) shows that, on average, consumer prices were 0.9% higher in 2019 compared to 2018, while prices of food and non-alcoholic beverages decreased by 0.8%, as summarised in Table 6.1.

Table 6.1: Consumer Price Index for the Republic of Ireland 2019 – 2018.

|  | Annual % change |
|---|---|
| Food & non-alcoholic beverages | -0.8 |
| Alcoholic beverages & tobacco | +3.1 |
| Clothing & footwear | -1.7 |
| Housing, water, electricity, gas & other fuels | +3.0 |
| Furnishings, household equipment & routine household maintenance | -2.7 |
| Health | +1.1 |
| Transport | -0.4 |

---

[128] FSAI (2011) Scientific Recommendations for Healthy Eating Guidelines in Ireland

| | |
|---|---|
| Communications | -6.7 |
| Recreation & culture | +1.3 |
| Education | +1.7 |
| Restaurants & hotels | +2.3 |
| Miscellaneous goods & services | +1.3 |
| All items | +0.9 |

Source: CSO, 2019. Consumer Price Index.

As set out in Table 6.2, the costs of food in Ireland has generally been decreasing since 2013, while the cost of soft drinks increased from 2002 to 2012 but has since been gradually decreasing. The cost of food decreased by around 11.3% between 2013 and 2019.

Table 6.2: Consumer Price Index of food and soft drink for the Republic of Ireland 2009 – 2019

| | Food | Soft drinks |
|---|---|---|
| 2019 | 96.8 | 105.0 |
| 2018 | 96.8 | 107.9 |
| 2017 | 99.2 | 103.8 |
| 2016 | 101.9 | 107.4 |
| 2015 | 102.9 | 111.1 |
| 2014 | 105.4 | 113.4 |
| 2013 | 108.1 | 112.9 |
| 2012 | 106.0 | 114.2 |
| 2011 | 105.5 | 109.0 |
| 2010 | 105.2 | 101.6 |
| 2009 | 111.1 | 105.6 |

Base year, 2016 =100

Source: CSO, 2019: Average Annual Consumer Price Index.

When the data was examined further to identify specific food groups, it was noted that whilst most foods have decreased in price over the last 10 years, sugars, jams and confectionary has decreased the most (by 27%), compared to non-alcoholic beverages (i.e. tea and coffee) which experienced a reduction of 8.7%, as shown in Table 6.3.

Table 6.3: Consumer Price Index of various food groups for the Republic of Ireland 2009 - 2019

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bread & cereals | 113.6 | 107.0 | 110.3 | 107.7 | 109.2 | 106.8 | 103.9 | 101.5 | 98.2 | 96.4 | 96.2 | 95.8 |
| Meat | 114.2 | 107.6 | 105.9 | 106.4 | 109.3 | 106.8 | 104.2 | 101.9 | 100.0 | 96.7 | 96.6 | 96.4 |
| Fish | 104.0 | 100.2 | 99.6 | 100.6 | 102.7 | 102.8 | 97.6 | 98.1 | 96.1 | 93.6 | 93.6 | 93.7 |
| Oils & fats | 91.7 | 85.5 | 94.3 | 99.1 | 99.7 | 101.1 | 99.6 | 101.5 | 104.3 | 104.4 | 104.7 | 105.4 |
| Fruit | 110.4 | 104.8 | 106.8 | 106.1 | 104.0 | 102.0 | 99.6 | 100.2 | 98.7 | 99.1 | 99.5 | 97.8 |
| Vegetables | 111.5 | 105.2 | 101.4 | 103.4 | 110.8 | 102.3 | 98.5 | 101.6 | 98.5 | 95.2 | 97.0 | 94.3 |
| Sugar, jam, honey, chocolate & confectionary | 116.1 | 109.2 | 110.7 | 112.2 | 110.8 | 110.5 | 110.3 | 107.4 | 100.8 | 95.5 | 94.0 | 88.8 |
| Non-alcoholic beverages | 105.5 | 100.2 | 105.5 | 109.0 | 107.8 | 107.5 | 106.6 | 104.1 | 100.3 | 101.2 | 99.5 | 96.8 |
| Soft drinks | 105.6 | 101.6 | 109.0 | 114.2 | 112.9 | 113.4 | 111.1 | 107.4 | 103.8 | 107.9 | 105 | 104.4 |

Source: CSO, 2019: Average Annual Consumer Price Index.

## 6.3 Northern Ireland Food Prices

NI specific CPI food prices are not available and UK wide CPI data is commonly used. Table 6.4 sets out inflation rates for major food groups from the UK CPI while Table 6.5 compares the harmonised Index of Consumer Prices from the European Union, RoI, UK and the USA over the perior 2009-2019.

Table 6.4: United Kingdom Consumer Price Index food data (2009-2019)

|  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Meat | 89.5 | 90.3 | 95.2 | 98.8 | 102.6 | 103.2 | 100.0 | 95.9 | 97.6 | 98.5 | 98.4 |
| Bread & cereals | 89.7 | 91.6 | 97.5 | 99.6 | 103.5 | 102.9 | 100.0 | 98.4 | 101.0 | 102.1 | 103.4 |
| Poultry | 130.9 | 130.9 | 138.4 | 139.8 | 145.2 | 144.6 | 136.2 | 127.5 | 125.3 | 124.5 | 121.6 |
| Dairy | 170.6 | 170.1 | 176.8 | 182.3 | 185.4 | 188.2 | 188.3 | 180.8 | 187.6 | 192.2 | 195.3 |
| Vegetables | 93.7 | 96.4 | 99.6 | 102.9 | 109.3 | 104.1 | 100.0 | 95.9 | 97.9 | 99.8 | 103.3 |
| Fruit | 168.2 | 181.6 | 188.6 | 193.1 | 208.5 | 209.4 | 209.8 | 211.9 | 218.3 | 225.2 | 224.8 |
| Soft drinks | 209.3 | 222.5 | 240.6 | 250.7 | 255.3 | 259.0 | 256.4 | 250.6 | 246.7 | 258.7 | 271.9 |
| Total | 189.1 | 195.0 | 206.6 | 213.3 | 221.2 | 221.3 | 216.2 | 211.5 | 216.4 | 220.5 | 223.7 |

*Base Year -1987: Source: ONS, 2020. Consumer Price Inflation

Table 6.5: Harmonised Index of Consumer Prices across the European Union, the Republic of Ireland, United Kingdom and the United States, 2009-2019

|  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ireland | 98.3 | 95.8 | 96.1 | 97.3 | 98.8 | 99.1 | 98.7 | 98.7 | 98.9 | 9.2 | 100.0 |
| UK | 84.9 | 87.8 | 91.3 | 94.6 | 97.1 | 99.0 | 99.3 | 99.5 | 101.4 | 104.4 | 106.3 |
| EU | 89.5 | 91.0 | 93.4 | 96.1 | 98.2 | 99.0 | 98.6 | 98.8 | 100.5 | 102.1 | 103.6 |
| USA | 88.3 | 91.8 | 93.7 | 96.8 | 98.3 | 99.6 | 98.6 | 99.3 | 101.4 | 103.2 | 104.3 |

Base Year =2015: Source: EuroStat HICP monthly data https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

As shown above, overall food prices have increased slightly over the past ten years, from 189% in 2009 to 223% in 2019. Soft drinks experienced the greatest inflation increasing from 209% in 2009 to 271% in 2019 (from the base year of 1987). Poultry is the only food group identified to have seen a reduction during this period. Data is available on the price of various foods to the consumer which provide a clearer indication of inflationary increased actually impact on the cost of food. Table 6.6 gives an overview of the average price of individual foods over the past ten years.

Table 6.6: Average United Kingdom prices (£ pence) of selected foods over the past ten years

|  | Cheddar (Kg) | Beef (Kg) | Bananas (kg) | Tomatoes (Kg) | Apples (Kg) | Milk (pint) in |
|---|---|---|---|---|---|---|
| 2009 | 749.8 | 1153 | 93 | 182 | 153 | 44.1 |
| 2010 | 779.3 | 1175 | 98 | 197 | 165 | 44.2 |
| 2011 | 780.1 | 1277 | 85 | 198 | 174 | 45.3 |
| 2012 | 788.8 | 1424 | 87 | 206 | 175 | 46.0 |
| 2013 | 777.8 | 1602 | 88 | 210 | 202 | 46.0 |
| 2014 | 801.6 | 1613 | 87 | 204 | 197 | 46.2 |
| 2015 | 766.6 | 1635 | 86 | 203 | 196 | 43.3 |
| 2016 | 718.8 | 1629 | 85 | 204 | 196 | 42.7 |
| 2017 | 718.2 | 1591 | 90 | 215 | 197 | 43.2 |
| 2018 | 727.7 | 1572 | 93 | 218 | 210 | 44.1 |
| 2019 | 708.7 | 1494 | 95 | 214 | 199 | 44.1 |
| Change | -6% | 30% | 1% | 18% | 30% | 0% |

Source: ONS, 2020. Consumer Price Inflation,

As shown above, the only food which has reduced in price over the last ten year is cheddar. Both beef and apples have increased in price almost one third (30%) whilst the price of a pint of milk has remained stable averaging at £0.45 per pint over the last ten years.

## 6.4 European Union Food Prices

When data relating to the HICP for food and non-alcoholic beverages for the EU, Ireland and the UK was examined, it showed significant changes across areas over the last 10 years, as summarised in Table 6.5.

As shown above, in 2009 food in Ireland was more expensive than the EU average or in the UK.  By 2019 food in Ireland was less expensive, as inflation on food in the UK, EU and the United States was much greater than in Ireland.  For example, the HICP data shows that the price of food increased by 1.7% in Ireland compared to an increase of 21.4% in the UK.

# 7 Environmental Data from the Agri-Food Sector

## 7.1 Introduction

This chapter details key environmental statistics including Green House Gas (GHG) emissions from the agri-food sector and from food and drink manufacturing. Most emissions from food systems can be attributed to agricultural production (24% of anthropogenic emissions). Emissions which occur from food processing are estimated to add a further 5-10% to this figure.

There are three main GHGs which are associated with agriculture and food production, each with different warming effects: carbon dioxide ($CO_2$: weak), methane ($CH_4$: strong), and nitrous oxide ($N_2O$: very strong). While $CO_2$ is not as potent as either methane or nitrous oxide, it has a significant impact on the environment as it is released in large amounts[129].

Globally, emissions released through on-farm agricultural production are responsible for around half of the overall emissions from the agricultural sector. The remaining half are caused as $CO_2$ is released through the conversion of ecosystems such as forests or wetlands into new farmland.

Within the agri-food industry worldwide, livestock are the biggest contributor to GHG emissions at 7.1 gigatonnes $CO_2$-eq per year accounting for 14.5% of human-caused emissions[130]. However, depending on the individual species and location, their contributions will vary. Foods with the highest GHG impacts generally come from ruminant meat (such as beef), followed by other meats and animal products (eggs, dairy). Foods which typically have the lowest environmental impacts (per kg of food produced) are those derived from plants.

## 7.2 Greenhouse Gas emissions from the Agri-Food Sector

The agri-food sector is an integral component of the economies across the IoI with agriculture and food production playing a key role in everyday life. GHG from the agri-food sector (livestock, fertilisers and agricultural machinery) have been rising in recent years with 34% of the RoI's GHG in 2018 attributable to the sector. In 2017, the RoI was reported to have the third highest overall emissions of greenhouse gases per capita in the EU[131]. Emissions from agriculture exceed GHG

---

[129] Garnett, et al, 2016. Food systems and greenhouse gas emissions.
[130] Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Falcucci, A. & Tempio, G. 2013. Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities. Food and Agriculture Organization of the United Nations (FAO), Rome.
[131] Central Statistics Office (CSO). Environmental Indicators Ireland 2019.

emissions of any other sector and was responsible for 34% of the total RoI GHG emissions in 2018[132,133]. In recent years, GHG emissions have been rising incrementally and have been driven by larger numbers of dairy cows and increases in milk production. RoI is currently projected to miss their emission targets set out under EU legislation despite existing measures which have already been adopted to reduce GHG emissions[134]. In 2017, GHG from agriculture made up 27% of total GHG emissions in NI, the largest proportion of all the sectors (Table 7.1)[135]. Table 7.2 shows agricultural GHG from RoI and NI for the period 2012-2017.

Table 7.1: Percentage distribution of gases as a total of greenhouse gas emissions associated with agriculture in Northern Ireland

| GHG | Northern Ireland |
|---|---|
| Methane (CH4) | 65% |
| Nitrous oxide (N20) | 26% |
| Carbon dioxide (CO2) | 9% |

Source: Department of Agriculture, Environment and Rural Affairs (DAERA), Efficient Farming cuts Greenhouse Gases Implementation Plan 2016-2020.

Table 7.2: Agricultural greenhouse gas emissions in Northern Ireland and the Republic of Ireland (kilotonnes CO2/year)

| Region | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| NI | 5,106 | 5,118 | 5,134 | 5,211 | 5,321 | 5,385 |
| RoI | 10,379 | 10,533 | 10,656 | 10,880 | 11,212 | 11,538 |

Sources: Department for Environment Food & Rural Affairs (DEFRA) National Atmospheric Emissions Inventory (NAEI), Greenhouse Gas emissions Reports; and Environmental Protection Agency (EPA), Greenhouse Gas Emissions From Agriculture.

N2O and CH4 are more portent GHGs than CO2. In 2018, the agriculture sector dominates emissions of N2O in the UK (including NI). Emissions from agricultural soils accounted for 55% of total UK emissions, while manure management accounted for another 13.5%[136]. Due to the nature of the agri-food sector, complex animal microbial processes and natural soil processes can make it more difficult

[132] DAFM, 2019. Annual Review and Outlook for Agriculture, Food and the Marine 2019.
[133] EPA. Greenhouse Gas Emissions From Agriculture.
[134] EPA, 2019. Ireland's Greenhouse Gas Emissions Infographic.
[135] DAERA, 2017. Greenhouse Gas Inventory Statistical Bulletin 2017 Infographic.
[136] National Atmospheric Emissions Inventory, 2018. https://naei.beis.gov.uk/overview/pollutants?pollutant_id=5

to measure N2O and CH4 emissions compared to measuring CO2.  N2O is produced both naturally by soil and from fertilisers.  CH4 is produced as a result of digestive processes of livestock (enteric fermentation) and the management of manure and it is 25 times more powerful as a GHG than CO2[137,138].  Across the IoI, enteric fermentation is the largest source of GHG emissions while agricultural soils and manure are the second and third largest sources, respectively (Tables 7.3, 7.4 and 7.5).

Table 7.3: Agriculture's GHG emissions by source: Republic of Ireland

| Emission Source | RoI |
| --- | --- |
| Enteric Fermentation (all ruminant animals) | 56% |
| Soils | 29% |
| Agricultural/Forestry Fuel Combustion | 3% |
| Manure | 10% |
| Liming | 2% |
| Urea application | <1% |

Source: EPA, 2018. Greenhouse Gas Emissions from Agriculture in 2018

Table 7.4: Agriculture's GHG emissions by source: Northern Ireland

| Emission Source | NI |
| --- | --- |
| Enteric Fermentation (Cattle) | 52% |
| Soils | 22% |
| Manure | 10% |
| Off road vehicle and equipment | 8% |
| Enteric Fermentation (Sheep) | 4% |
| Other | 3% |

Source: DAERA, 2014. Northern Ireland Greenhouse Gas Inventory.

---

[137] DAERA. Efficient Farming cuts Greenhouse Gases Implementation Plan 2016-2020.
[138] Teagasc and Bord Bia, 2019. The Dairy Carbon Navigator: Improving Carbon Efficiency on Irish Dairy Farms.

Table 7.5: Agriculture GHG emissions by source in the Republic of Ireland (kilotonnes per year) 2013-2018

| Header | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| Agriculture/Forestry fuel combustion | 674.28 | 608.58 | 580.05 | 600.49 | 631.14 | 680.35 |
| Urea application | 21.66 | 25.09 | 28.31 | 35.8 | 35.04 | 38.13 |
| Liming | 515.69 | 391.07 | 401.15 | 433.6 | 332.75 | 457.45 |
| Agricultural Soils | 5566.32 | 5939.46 | 5379.63 | 5439.69 | 5711.62 | 5907.36 |
| Manure Management | 1832.21 | 1840.2 | 1872.41 | 1936.82 | 1972.42 | 1970.84 |
| Enteric Fermentation | 10532.74 | 10655.91 | 10880.29 | 11212.11 | 11537.81 | 11543.21 |

Source: EPA, 2018. Greenhouse Gas Emissions from Agriculture in 2018

### 7.2.1 EU context

In 2018, the RoI's agricultural sector was estimated to produce 31.1% of the overall GHG emissions. The trends in GHG emissions by agriculture (see Table 7.6) have been estimated under the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Decision 525/2013/EC[139].  Trend data for 2013-2018 are presented.  Data between 2007 and 2018 can be accessed via the source link.

Table 7.6: Greenhouse Gas from agriculture in European Union and European Economic Area countries (as a % of the country's overall Greenhouse Gas emissions)

| Region | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| European Union – 28 countries (2013-2020) | 9.3 | 9.8 | 9.8 | 9.8 | 9.8 | 9.9 |
| Albania | - | - | - | - | - | - |
| Austria | 8.7 | 9.2 | 9 | 9 | 8.7 | 8.9 |
| Belgium | 7.9 | 8.5 | 8.2 | 8.1 | 8.2 | 8.1 |
| Bulgaria | 10.2 | 10.5 | 10 | 11 | 10.5 | 10.9 |
| Croatia | 11 | 11 | 11.1 | 10.9 | 11 | 11.2 |
| Cyprus | 5.3 | 4.9 | 5 | 5 | 5 | 5.1 |
| Czechia | 6.1 | 6.3 | 6.6 | 6.7 | 6.7 | 6.7 |
| Denmark | 18.8 | 20.4 | 21.3 | 20.7 | 21.7 | 21.5 |

[139] Eurostat, 2020. Greenhouse Gas Emissions from Agriculture.

| | | | | | | |
|---|---|---|---|---|---|---|
| Estonia | 6.4 | 6.8 | 7.9 | 7.1 | 6.8 | 7.1 |
| Finland | 10.1 | 10.9 | 11.5 | 11.1 | 11.5 | 11.2 |
| France | 15 | 16.4 | 16.2 | 15.9 | 15.8 | 16.2 |
| Germany | 6.8 | 7.3 | 7.3 | 7.1 | 7.2 | 7.2 |
| Greece | 8 | 7.8 | 8 | 8.3 | 8 | 8.1 |
| Hungary | 11 | 11.3 | 11.1 | 11.5 | 11 | 11.2 |
| Iceland | 12 | 12.7 | 12 | 11.7 | 11.1 | 10.3 |
| Ireland | **31** | **30.8** | **30** | **29.8** | **30.6** | **31.1** |
| Italy | 6.7 | 6.9 | 6.7 | 6.9 | 6.9 | 6.9 |
| Latvia | 22 | 22.9 | 23.2 | 23.2 | 23.1 | 21.4 |
| Liechtenstein | 10.2 | 12 | 12 | 12.6 | 12 | 13 |
| Lithuania | 21 | 22.1 | 22.1 | 21.4 | 21 | 20.7 |
| Luxembourg | 5.2 | 5.5 | 5.8 | 6 | 5.8 | 5.6 |
| Malta | 2.1 | 2 | 2.6 | 2.9 | 2.5 | 2.5 |
| Montenegro | - | - | - | - | - | - |
| Netherlands | 8.7 | 9.1 | 9 | 9.1 | 9.2 | 9.1 |
| North Macedonia | - | - | - | - | - | - |
| Norway | 7.8 | 7.9 | 8 | 8.2 | 8.4 | 8.3 |
| Poland | 7.8 | 8.1 | 7.8 | 7.8 | 7.8 | 8 |
| Portugal | 9.7 | 9.9 | 9.3 | 9.6 | 9.1 | 9.5 |
| Romania | 16.1 | 16.1 | 16.4 | 16.7 | 16.3 | 17 |
| Serbia | - | - | - | - | - | - |
| Slovakia | 6.2 | 6.8 | 6.4 | 6.5 | 6.1 | 6.3 |
| Slovenia | 9 | 10.2 | 10.3 | 9.9 | 9.9 | 9.8 |
| Spain | 10.7 | 11.1 | 10.9 | 11.3 | 11.2 | 11.3 |
| Sweden | 11.8 | 12.3 | 12.3 | 12.3 | 12.7 | 12.4 |
| Switzerland | 10.6 | 11.5 | 11.5 | 11.3 | 11.5 | 11.5 |
| Turkey | 12.4 | 11.9 | 11.5 | 11.5 | 11.7 | 12.2 |
| **United Kingdom** | **6.7** | **7.4** | **7.5** | **7.9** | **8.1** | **8.2** |

Source: Eurostat, 2020. Greenhouse Gas Emissions from Agriculture (Online data code: TAI08)

## 7.2.2 Ammonia

Ammonia is closely linked to agricultural GHG emissions through various farming activities, and while it is not in itself classified as a GHG, ammonia emissions are considered to be an indirect GHG[140]. Ammonia has been identified as a key air pollutant which can have significant effects on human health and the environment[141]. In 2013, NI's ammonia emissions per capita were more than four times the UK average[142]. This has been attributed to NI's agriculture sector which accounts for a greater proportion of the NI economy compared to the rest of the UK. In 2016, agriculture contributed to 94% of total ammonia emissions in NI[143]. Increased emissions from the agriculture sector, in the form of application of waste to soils from cattle, have resulted in higher ammonia emissions in recent years. Table 7.7 provides ammonia emission estimates for NI over the past five years by category. Estimates from 1990-2016, and other air pollutant emissions estimates, can be accessed via the source link.

Table 7.7: Summary of ammonia emission estimates for Northern Ireland, 2012-2016 (kilotonnes per year)

| Category | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| Agriculture | 27.2 | 27.7 | 27.7 | 28.6 | 29.9 |
| Transport Sources | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 |
| Industrial Processes | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Waste | 0.6 | 0.8 | 0.8 | 0.9 | 1 |
| Other | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 |
| **Total** | **28.7** | **29.4** | **29.4** | **30.4** | **31.8** |

Source: DEFRA, 2018. NAEI: Air Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 1990-2016, p84.

As summarised in the Table 7.8, different agricultural activities have different levels of ammonia emissions. Cattle manure management and manure applied to soil accounted for the majority of emissions in NI (73%) in 2016.

Table 7.8: Disaggregation of agriculture ammonia emissions in Northern Ireland in 2016

| Emission source | Proportion of emissions |
|---|---|
| Cattle manure management | 40% |
| Manure applied to soils | 33% |
| Other manure management | 11% |

---

[140] DAERA. Efficient Farming cuts Greenhouse Gases Implementation Plan 2016-2020.
[141] DEFRA, 2018. Code of Good Agricultural Practice (COGAP) for Reducing Ammonia Emissions.
[142] DEFRA, 2015. NAEI: Air Quality Pollutant Inventories for England, Scotland, Wales and Northern Ireland.
[143] DEFRA, 2018. NAEI: Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2016.

| | |
|---|---|
| Grazing animal excreta | 8% |
| Inorganic fertilizers | 7% |

Source: DEFRA, 2018. NAEI: Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2016.

In RoI, the agriculture sector accounts for virtually all (99.1%) ammonia emissions[144]. In 2018, manure management, manure applied to soil and nitrogen from urine and dung deposition by grazing animals accounted for 88.6% of national ammonia emissions (Table 7.9). Of all livestock, both dairy and non-dairy cattle were responsible for the majority of ammonia emissions from the RoI agriculture sector in 2018 at 38.2% (Table 7.10). Since 1990, which has been established as a base measure, ammonia emissions have increased by 7.9% from 109.8kt to 119.3kt in 2018[145].

Table 7.9: Republic of Ireland agricultural ammonia emissions: sources other than livestock (kt/year)

| Ammonia – Agri/other | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| Inorganic N-fertilizers (incl. urea application) | 7.842 | 8.692 | 9.029 | 9.650 | 11.192 | 11.412 |
| Animal manure applied to soils | 31.891 | 32.237 | 32.335 | 33.146 | 34.576 | 35.318 |
| Sewage sludge applied to soils | 0.444 | 0.338 | 0.276 | 0.304 | 0.295 | 0.302 |
| Urine and dung deposited by grazing animals | 13.427 | 13.634 | 13.688 | 13.702 | 14.141 | 14.531 |

Source: EPA, 2019. Informative Inventory Report (IIR).

Table 7.10: Republic of Ireland agricultural ammonia emissions from livestock (kt/year)

| Ammonia – Agri/livestock | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| Manure Management – Dairy Cattle | 10.967 | 11.201 | 11.683 | 12.707 | 13.439 | 14.096 |
| Manure Management – Non-dairy cattle | 30.043 | 30.486 | 29.913 | 29.862 | 31.023 | 31.299 |
| Manure Management - Sheep | 1.165 | 1.157 | 1.141 | 1.128 | 1.129 | 1.193 |
| Manure Management - Swine | 4.643 | 4.531 | 4.602 | 4.542 | 4.719 | 4.830 |
| Manure Management - Goats | 0.020 | 0.017 | 0.017 | 0.021 | 0.019 | 0.016 |
| Manure Management - Horses | 0.949 | 0.868 | 0.811 | 0.795 | 0.788 | 0.725 |
| Manure Management – Laying hens | 0.659 | 0.717 | 0.740 | 0.829 | 0.841 | 0.880 |
| Manure Management - Broilers | 1.397 | 1.306 | 1.471 | 1.482 | 1.494 | 1.494 |
| Manure Management - Turkeys | 0.807 | 0.743 | 0.785 | 0.813 | 0.841 | 0.841 |

---

[144] EPA, 2020. Ireland's Air Pollutant Emissions 1990-2030.
[145] Ibid 146.

| | | | | | |
|---|---|---|---|---|---|
| Manure Management – Other poultry | 0.082 | 0.080 | 0.085 | 0.090 | 0.096 | 0.096 |
| Manure Management – Other animals | 0.287 | 0.286 | 0.287 | 0.285 | 0.286 | 0.286 |

Source: EPA, 2019. Informative Inventory Report (IIR).

The total ammonia emissions from agriculture on the IoI for the period 2012-2016 is shown in Table 7.11.

Table 7.11: Total ammonia emissions from agriculture on the island of Ireland, 2012-2016 (kt/year)

| | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| **RoI** | 104.68 | 106.34 | 106.91 | 109.41 | 114.93 |
| **NI** | 27.2 | 27.7 | 27.7 | 28.6 | 29.9 |
| **IoI TOTAL** | 131.88 | 134.04 | 134.61 | 138.01 | 144.83 |

Sources: EPA, 2019. Informative Inventory Report (IIR); DEFRA, 2018. NAEI: Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2016

### 7.2.3 Green House Gas Emissions from dairy production

The production of dairy is a significant contributor to GHG emissions from the agri-food sector[146]. Despite the expansion of the dairy sector over the years, GHG emissions related to milk production in NI decreased to 1,272 ($CO_2$ equivalents/kg energy corrected milk (ECM)) in 2017 compared to a population average of 1,927 ($CO_2$ equivalents/kg ECM) in 1990.  This longer-term trend shows a 34% decrease in emissions intensity of milk production between 1990 and 2017.  Improvements in carbon footprint in the NI dairy sector are reported to be driven by increases in milk yield per cow[147].  Table 7.12 details emissions intensity of milk production over the last five years of available data and Table 7.13 details the historic data since 1990.

Table 7.12: Emissions intensity of milk production Northern Ireland (g $CO_2$ equivalents/kg energy corrected milk (excluding sequestration))[148]

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Emissions intensity of milk production | 1384 | 1336 | 1291 | 1285 | 1272 |

---

[146] DAERA. Northern Ireland Carbon Intensity Indicators 2019.
[147] Ibid, 148.
[148] Carbon footprints refer to Greenhouse Gas (GHG) emissions per unit of product and thereby allow assessments at that level. The data are presented in terms of grams of carbon dioxide equivalent per kilogram of energy corrected milk. Sequestration refers to the process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form. Within agriculture, plants and soil sequester carbon as part of a natural process (DAERA, 2017).

Source: DAERA, 2017. Greenhouse Gas Emissions on Northern Ireland Dairy Farms.

Table 7.13: Emissions intensity of milk production in NI 1990-2017 (g CO2 equivalents/kg energy corrected milk (excluding sequestration))

| Years and emissions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
| g CO2e/kg ECM | 1927 | 1891 | 1916 | 1917 | 1925 | 1910 | 1925 | 776 | 1752 | 1794 |
| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| g CO2e/kg ECM | 1723 | 1649 | 1636 | 1669 | 1623 | 1551 | 1459 | 1363 | 1354 | 1371 |
| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | | |
| g CO2e/kg ECM | 1349 | 1280 | 1294 | 1384 | 1336 | 1291 | 1285 | 1272 | | |

Source: DAERA, Northern Ireland Carbon Intensity Indicators 2019.

Between 2013 and 2018 in RoI, an increase in dairy cows (27%) and a subsequent increase in milk production (40%) has contributed to increased GHG emissions. Data which estimates the emissions intensity of milk production on farms in RoI is currently not available.

## 7.3 Trends in CO2 emissions from Food and Drink manufacturing

### 7.3.1 Republic of Ireland statistics

Overall emissions from the combustion of fuels within the manufacturing industry in RoI has increased year on year since 2011 following a decline after 2008 (Tables 7.14 and 7.15). Emissions from food and drink processing increased by 0.9% in 2018[149] (Table 7.16).

Table 7.14: Manufacturing and combustion emissions Republic of Ireland 1990-2019

| Years and emissions (kt CO2 eq) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
| Others | 826.43 | 1038.06 | 963.14 | 1001.67 | 1075.03 | 1103.39 | 1017.50 | 1143.35 | 1142.60 | 1165.74 |

[149] Source: EPA website, 2018. Manufacturing and Industry.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Non-metallic minerals | 822.78 | 844.13 | 550.89 | 612.97 | 440.42 | 488.31 | 547.09 | 538.19 | 493.71 | 479.15 |
| Food processing, beverages & tobacco | 1021.40 | 1087.97 | 998.71 | 1063.41 | 1119.49 | 1135.01 | 1105.00 | 1219.89 | 1242.49 | 1278.52 |
| Pulp, paper & print | 28.53 | 28.46 | 34.66 | 42.22 | 51.20 | 57.62 | 61.07 | 69.67 | 78.73 | 83.44 |
| Chemicals | 411.36 | 342.96 | 334.56 | 346.00 | 359.56 | 34.49 | 323.33 | 330.18 | 328.91 | 375.93 |
| Non-ferrous metals | 811.46 | 825.66 | 961.99 | 986.60 | 1247.73 | 1183.73 | 1125.66 | 1221.41 | 1219.13 | 1293.02 |
| Iron & steel | 175.88 | 18.73 | 18.73 | 18.73 | 18.73 | 18.73 | 18.75 | 18.76 | 18.78 | 18.80 |
| **Year** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** |
| Others | 1339.48 | 1504.51 | 1241.33 | 1100.89 | 924.51 | 1006.74 | 881.19 | 979.36 | 924.10 | 535.48 |
| Non-metallic minerals | 692.68 | 630.53 | 883.70 | 1330.22 | 1705.13 | 1777.15 | 1661.67 | 1691.14 | 1524.02 | 987.12 |
| Food processing, beverages & tobacco | 1525.95 | 1530.97 | 1279.43 | 1127.52 | 939.43 | 1066.14 | 905.70 | 812.14 | 802.72 | 928.09 |
| Pulp, paper & print | 96.07 | 95.20 | 83.67 | 77.02 | 69.21 | 37.30 | 23.05 | 8.77 | 16.61 | 16.11 |
| Chemicals | 459.51 | 474.86 | 438.24 | 419.88 | 412.46 | 447.79 | 353.78 | 312.08 | 321.82 | 365.42 |
| Non-ferrous metals | 1347.29 | 1189.81 | 1162.46 | 1163.83 | 1239.39 | 1134.32 | 1433.10 | 1542.79 | 1566.60 | 1300.77 |
| Iron & steel | 18.81 | 18.82 | 18.81 | 2.38 | 2.38 | 2.38 | 2.38 | 2.39 | 2.38 | 2.39 |
| **Year** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** |
| Others | 492.64 | 435.74 | 418.66 | 473.62 | 547.36 | 490.88 | 537.20 | 553.78 | 597.35 | 615.82 |
| Non-metallic minerals | 777.88 | 692.17 | 783.67 | 797.13 | 1044.92 | 1114.81 | 1154.70 | 1147.87 | 1212.62 | 1166.86 |
| Food processing, | 920.91 | 818.54 | 914.81 | 940.37 | 911.31 | 948.67 | 988.86 | 1036.08 | 1068.74 | 983.70 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| beverages & tobacco | | | | | | | | | | |
| Pulp, paper & print | 13.94 | 9.74 | 13.28 | 11.89 | 10.85 | 10.12 | 11.97 | 12.51 | 13.29 | 13.47 |
| Chemicals | 387.28 | 376.19 | 391.06 | 358.05 | 365.46 | 381.83 | 385.99 | 394.82 | 416.97 | 425.43 |
| Non-ferrous metals | 1569.44 | 1355.11 | 1233.26 | 1337.22 | 1296.85 | 1312.43 | 1271.20 | 1314.39 | 1373.62 | 1381.58 |
| Iron & steel | 2.39 | 2.39 | 2.38 | 2.35 | 2.38 | 2.39 | 2.34 | 2.34 | 2.34 | 2.35 |

Source: EPA website, 2018. Manufacturing and Industry.

Table 7.15: Manufacturing and combustion projections, Republic of Ireland 2020-2030

| Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|---|---|---|---|---|
| WEM* | 5628.12 | 5674.25 | 5709.34 | 5694.88 | 5714.05 | 5743.31 | 5806.76 | 5872.31 | 5939.99 | 6013.19 |
| WAM* | 5481.89 | 5454.90 | 5382.31 | 5284.40 | 5214.56 | 5148.23 | 5121.77 | 5099.51 | 5079.66 | 5065.86 |

Source: EPA website, 2018. Manufacturing and Industry.

* Projections as of July 2020 under (a) the With Existing Measures (WEM) scenario or (b) the With Additional Measures scenario:

Table 7.16: Manufacturing combustion emissions: food processing, beverages and tobacco, Republic of Ireland (kilotonnes CO2/year)

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| RoI | 800.69 | 859.6 | 860.9 | 869.14 | 899.82 |

Source: EPA website, 2018. Manufacturing and Industry.

The following data relate to Non-Methane Volatile Organic Compound (NMVOC) emissions from food and drink manufacturing in RoI (Table 7.17). Emissions from NMVOCs in RoI have decreased by 22% since 1990, with the production of food and beverages accounting for 23% of emissions (agriculture is the largest source at 41%)[150]. NMVOC emissions from food manufacturing include all processes which occur in the food chain after the slaughtering of animals and harvesting of crops, while emissions from drink manufacturing include alcoholic beverage production (wine, beer and spirits)[151] (Table 7.18).

---

[150] EPA, 2019. Air Pollutant Emissions in Ireland.
[151] EMEP/ EEA, 2009. Air Pollutant Emission Inventory Guidebook – 2009.

For the RoI, emissions from the following manufacturing processes as outlined by the EMEP/EEA Guidebook (EMEP/EEA, 2019) are not occurring[152]: wine production; sugar production (last occurring in 2005); flour production (which does not occur on a large scale); and margarine and fats production.

The following 6 subcategories hold emission estimates for the RoI:

- Bread
- Beer
- Spirits
- Meat, fish etc. frying/curing
- Coffee Roasting
- Feedstock

The most significant sources of emissions in the food and beverage industry in RoI are spirit production, bread production and animal feed production.

Table 7.17: Emissions from Non-Methane Volatile Organic Compounds (NMVOC) in Food and Beverage industrial processes (Republic of Ireland), 2014-2018

| Emission factor | Unit | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| Bread baking | kg/t | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Baking goods | kg/t | 1 | 1 | 1 | 1 | 1 |
| Production of beer | kg/hL | 0.035 | 0.035 | 0.035 | 0.035 | 0.035 |
| Production of spirits | kg/hL | 15 | 15 | 15 | 15 | 15 |
| Meat/fish curing/frying | kg/t | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |

Source: EPA, 2020. Informative Inventory Report (IIR) 2020.

Table 7.18: Emissions from Non-Methane Volatile Organic Compounds (NMVOC) in the Food and Beverage Industry (Republic of Ireland), 2013-2017 (kilotonnes)

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| NMVOC (kt) | 22.492 | 19.031 | 20.041 | 21.241 | 26.574 |

Source: EPA, 2019. Informative Inventory Report (IIR)

---

[152] EPA, 2020. Informative Inventory Report 2020.

Similar data on food and beverage manufacturing emissions are not available for NI or the UK.

## 7.4 Impact of sustainability initiatives

### 7.4.1 Northern Ireland

Decarbonisation in NI comes with a unique set of challenges due to the country's economic and political circumstances[153],[154]. Unlike the rest of the devolved administrations which make up the UK, NI has been a member of an Integrated Single Electricity Market (I-SEM) shared with the RoI since 2018[155], meaning that energy policy must consider the efficiency of an all-island market.

A further challenge for decarbonisation in NI is the proportionate contribution of GHG from the agriculture sector compared to the rest of the UK (30% in NI compared to 10% in the UK). As the NI economy relies heavily on the agri-food sector, and farming in NI is more heavily livestock-based compared to the rest of the UK, reducing carbon emissions from agriculture to meet EU and global climate change commitments will be even more challenging.

#### 7.4.1.1 Efficient Farming Cuts Greenhouse Gases Implementation Plan 2016-2022

The Efficient Farming Cuts Greenhouse Gases Implementation Plan 2016-2020 builds on the existing efforts being made by the agri-food and forestry sector in NI to minimise emissions per unit output of the agricultural sector (carbon intensity)[156]. The strategy has been devised by the Greenhouse Gas Implementation Partnership – a voluntary partnership formed in 2009 between environmental organisations, the agri-food sector, science and government. The earlier Plan 2011-2015 marked the initial action taken towards more sustainable agriculture. Four key implementation themes were identified in order to move towards more efficient and sustainable farming:

- Better nutrient management
- Better land management (locking in carbon)
- Better livestock management
- Energy efficiency and renewable energy

A number of key achievements have been identified as a result of the 2011-2015 Strategy and Action Plan. Detailed advice on key actions (specific carbon efficiency measures) that farmers, growers and landowners can take to implement the four key themes can be found in the Efficient Farming Cuts Greenhouse Gases Implementation Plan 2016-2022.

---

[153] Decarbonising the power sector involves reducing emissions per unit of electricity generated. This is achieved through increasing the share of low-carbon energy sources such as renewables (for example, replacing fossil fuels with wind or solar power).
[154] The Committee on Climate Change (CCC), 2019. Reducing emissions in Northern Ireland.
[155] Eirgrid Group, 2020. The Integrated Single Electricity Market Project.
[156] DAERA. Efficient Farming cuts Greenhouse Gases Implementation Plan 2016-2020.

The Efficient Farming Cuts Greenhouse Gases Implementation Plan 2016-2020 presents seven case studies which outline the benefits and challenges of farm-specific carbon reduction strategies which have been implemented as part of the support provided to farmers and landowners to reduce carbon intensity.

### 7.4.1.2 Committee on Climate Change: Reducing Emissions in Northern Ireland

Under the Paris Agreement (2016), NI must meet the UK's legislated emissions reductions targets. The Committee on Climate Change (CCC) have estimated that NI's contribution to the fifth UK carbon budget requires a minimum of 35% reduction in emissions against 1990 levels by 2030[157]. The CCC produced a report specific to NI emissions in response to advice requested by the Department for Agriculture, Environment and Rural Affairs (DAERA)[158]. The report proposes actions that can be taken across broad sectors of the NI economy and highlights NI's individual characteristics which separate it from the rest of the devolved nations when considering the country's contribution to UK-wide decarbonisation. Additionally, it outlines a number of policy options to decarbonise agriculture and land use, land use change and forestry (LULUCF).

Under DAERA's 2013 "Going for Growth" strategy, targets have been set out to increase growth and productivity of the agri-food sector (including farming and food processing)[159]. While the strategy is primarily focused on growth, it highlights some sustainability measures. If the strategy is successful, increased outputs from the agricultural sector will add pressure to the existing challenge of reducing overall carbon emissions from the sector.

NI has significantly lower forest coverage than the UK as a whole (8% compared to 13%), highlighting the importance of afforestation in the context of sustainability efforts. A forestry grant scheme run by DAERA is in place to increase tree coverage from 6% in 2006 to 12% in 2056. Tree planting rates in the last five years have fallen, which has been attributed to the period between the closing of one Rural Development Programme period (2006-2013) and the opening of the next (2014-2020). The CCC have recommended that in order to meet the UK's legislated emissions reductions targets, NI must meet an afforestation target of 900 hectares per year (of a total 15,000 hectares per year for the UK as a whole). The indicator framework has been developed by the CCC to monitor progress in reducing UK emissions on track for 2030 targets.

In the CCC's higher scenario for emissions reductions, doubling this rate of afforestation in NI (900 hectares per year) would abate overall emissions from the LULUCF sector (Table 7.19).

---

[157] The Committee on Climate Change (CCC), 2019. Reducing emissions in Northern Ireland.
[158] Ibid 158.
[159] DAERA, 2017. Going for Growth – a strategic action plan in support of the NI agri-food industry.

Table 7.19: Committee on Climate Change – 2030 scenarios for LULUCF in Northern Ireland

| Scenarios | Mt CO2 eq |
|---|---|
| 1990 | 0.22 |
| 2016 | 0.28 |
| DAERA Projection 2030 | 0.22 |
| Fifth Carbon budget 2030 | 0.18 |
| Higher rate of afforestation 2030 | 0.125 |

Source: Committee on Climate Change (CCC), 2019. Reducing emissions in Northern Ireland.

## 7.4.2 Republic of Ireland

In order to mitigate risks to the environment posed by current production and consumption levels and to reflect international policies on climate change, Ireland must work towards improved resource-efficiency and a sustainable environment[160].

## 7.4.2.1 Environmental Protection Agency Research Strategy 2014-2020

The EPA Research Strategy 2014-2020 focuses on three key pillars; climate; water; and sustainability[161]. EPA research outputs between 2007 and 2013 have highlighted environmental challenges for Ireland. The current research aims to support the development and implementation of environmental policy by identifying pressures on our environment.

## 7.4.2.2 Bio energy

The production and use of biomass are key contributions which can be made by the agriculture sector in order to meet renewable energy targets and a growing demand for sustainable sources of bioenergy[162]. Materials such as wood thinnings and agri-food by-products such as straw and processing waste (e.g. whey) are some examples of biomass that can be produced by the agriculture sector. EU legislation frames Irish policy on bioenergy. An EU target of 32% of total energy coming from renewable sources has been set by the Renewable Energy Directive (RED II) and should be reached by 2030 (the target figure will be revised in 2023)[163].

---

[160] EPA. Sustainability Research Strategy 2014-2020.
[161] Ibid, 161
[162] DAFM, 2019. Annual Review and Outlook for Agriculture, Food and the Marine 2019.
[163] European Commission EU Science Hub. Renewable Energy – Recast to 2030 (RED II).

### 7.4.2.3 The Agricultural Sustainability Support & Advisory Programme (ASSAP)

The Agricultural Sustainability Support & Advisory Programme (ASSAP) aims to promote farmer behavioural change for the protection of water in line with Water Framework Directive objectives and aims to improve water quality[164]. Sustainability advisors have been assigned to advise farmers on specific strategies that can be used to improve water quality. Examples of advice given include more targeted use of fertiliser and improved nutrient management. The ASSAP is a collaborative initiative supported by both DAFM and the Department of Housing, Planning and Local Government (DHPLG) alongside industry.

### 7.4.2.4 The Dairy Carbon Navigator

The Dairy Carbon Navigator was developed by Teagasc and Bord Bia to support the Sustainable Dairy Assurance Scheme[165]. It focuses on 5 key efficiency measures which are suggested to reduce GHG emissions:

- Longer grazing season
- Increased EBI (Economic Breeding Index)
- Improved nitrogen use efficiency
- Improved slurry management
- Energy efficiency

Table 7.20 outlines the proposed reductions in GHG emissions and other advantages of implanting the 5 key measures.

Table 7.20: The Dairy Carbon Navigator – lowering agricultural greenhouse gases

| Efficiency measure | Impact on Carbon Footprint |
|---|---|
| Extended Grazing | • Grazed grass in the early and late season is a higher quality, more digestible feed than grass silage leading to improvements in animal productivity and a reduction in the proportion of dietary energy lost as methane.<br>• The shorter housing season leads to reduced slurry methane ($CH_4$) and nitrous oxide ($N_2O$) emissions from slurry storage. Energy use from spreading is also cut<br>It is estimated that for every 10 Day Increase in grazing season there is a 1.7% reduction in GHGs, and profitability is boosted by €27/ Cow. |
| Improved EBI | • Improving fertility reduces calving interval and replacement rate, thus reducing enteric $CH_4$ emissions per unit of product.<br>• Increasing milk yield and composition increases the efficiency of production, which decreases emissions per unit of product. |

[164] Teagasc. Agricultural Sustainability Support and Advisory Programme (ASSAP).
[165] Teagasc and Bord Bia, 2019. The Dairy Carbon Navigator: Improving Carbon Efficiency on Irish Dairy Farms.

| | |
|---|---|
| | • More compact calving can increase the proportion of grazed grass in the diet and reduces culling and replacement rates.<br>• Improved survival and health reduces deaths and the incidence of disease leading to higher productions levels and lower replacement rate. |
| Nitrogen Efficiency | • Improving nitrogen efficiency leads to improved utilisation of N by plants and lowers losses to the air and water.<br>• The timing and method of slurry application has a significant effect on N utilisation.<br>• Urea requires less energy (and CO2) to produce than CAN.<br>A reduction in N fertiliser of 10Kg per Ha will reduce farm GHG emissions by 1% and improve income by €10 / Ha. |
| Slurry Management | • Spring application reduces emissions following land spreading due to the more favourable weather conditions (cool, low sunlight) at that time of year.<br>• Storage losses of methane are reduced due to the shorter storage period.<br>• Reduced Ammonia losses increases the fertiliser replacement value, reduces fertiliser N and associated manufacture and spreading emissions.<br>• Low emissions application technologies such as trailing shoe lead to reduced Ammonia losses and increases the fertiliser replacement value of slurry.<br>A 20% shift to spring application can reduce farm GHGs by 1.3% while a shift to of trailing shoe can reduce GHGs by 0.9% |
| Energy Efficiency | • Ensure that you have effective pre-cooling of milk through a Plate Heat Exchanger.<br>• Use of variable speed drive (VSD) Vacuum Pumps.<br>• Use energy efficient water heating systems<br>For a 100-cow herd improving the performance of the plate cooler, installing a variable speed vacuum pump and changing the water heating to gas or oil can reduce enterprise GHG emissions by 1.1% and lead to electricity savings of €1400 which can provide a return on the investment in approximately 5 years |

Source: Teagasc and Bord Bia, 2019. The Dairy Carbon Navigator – Improving Carbon Efficiency on Irish Dairy Farms.

## 7.4.2.5 The Burren Programme

The Burren Programme aims to conserve the environment and support the heritage of the Burren region which includes a number of Special Areas of Conservation (SACs)[166]. The programme is farmer-led with farmers given the autonomy to manage their land as they see fit (within the law). Farmers are paid for actions which aim to improve the conservation condition of their land. They also benefit from a "results-based payment system" where farms are scored annually according to a "habitat-health" checklist. The data collected helps to highlight the positive environmental outcomes of the programme. Farmers must pay for the services of a specialist-trained farm advisor who will liaise with the farmer and the Burren Programme team.

---

[166] The Burren Programme, 2020. The Programme.

### 7.4.2.6 The Afforestation Scheme

ROI's forests and wetlands cover approximately 11% of the total land area. State grants awarded since the 1980's have increased forest growth over the past few decades. However, RoI sits below the average EU forest coverage (38%)[167]. The Afforestation Scheme, funded under the Forestry Programme 2014-2020, aims to help RoI reach the goal of 18% forest cover by 2050. The overall objectives of the scheme are the following:

- To increase Ireland's forest cover to 18%
- To ensure that at least 30% of the area afforested comprises broadleaves, including native woodland
- To develop a forest-based biomass resource and generally encourage its use in domestic markets
- To increase levels of carbon sequestration contributing towards climate change mitigation
- Encourage forest management practices that restore, preserve and enhance forest biodiversity
- To provide a resource that will contribute to long-term sustainable development in the rural economy.

## 7.5 Climate change preparedness

### 7.5.1 Northern Ireland

According to the CCC's UK Climate Change Risk Assessment (2017 Evidence Report), NI's biodiversity is internationally important[168]. A number of protection measures have been put in place via both EU and national initiatives with the aim of protecting land and marine environments across NI. The CCC have reported that more action is required to build resilience to climate change risks which may affect soils, farming and marine ecosystems (amongst other examples). The report has also identified that more action is needed to address risks to soils from increased seasonal aridity and wetness, risks to natural carbon stores and carbon sequestration, risks to agriculture and wildlife from drought and flooding, risks to freshwater species from higher water temperatures and reduced water quality, risks to habitats and heritage in the coastal zone from sea-level rise, and loss of natural flood protection. Infrastructure has been identified in NI as being exposed to climate hazards with flooding highlighted to pose the greatest long-term risk.

---

[167] DAFM, 2016. Afforestation Scheme.
[168] CCC, 2017. UK Climate Change Risk Assessment 2017 Evidence Report.

### 7.5.1.1 Northern Ireland Climate Change Adaptation Programme 2019-2024

The Northern Ireland Climate Change Adaptation Programme (NICCAP2) highlights two major strategies for addressing climate change in NI: mitigation (which aims to reduce GHG emissions by addressing and preventing the root cause of climate change) and adaptation[169]. Acknowledging that NI as a region will undoubtedly experience further climate change, the report states that NI planning should evolve in line with the scientific evidence and understanding of climate change. The programme details 5 key priority areas and 7 key objectives which are outlined in Table 7.21.

Table 7.21: NICCAP2 key priority areas and outcome objectives

| | NICCAP2 Key Priority Areas | NICCAP2 Outcome Objectives & Visions |
|---|---|---|
| NC | Natural Capital including Terrestrial, Coastal/Marine/Freshwater ecosystems, soils & biodiversity. | NC1: We will have species, habitats & water bodies that are resilient to the impacts of Climate Change. |
| | | NC2: We have coastal communities, habitats, landforms and infrastructure that are resilient to the impacts of Climate Change. |
| | | NC3: We have soils and woodland that are resilient to the impacts of Climate Change. |
| IF | Infrastructure Services | IF1: We have Transport and Network Services that are resilient to the impacts of flooding & extreme weather. |
| P | People & Built Environment | P1: We have people, homes, buildings and communities that are resilient to the impacts of flooding & extreme weather. |
| B | Disruption to Businesses & Supply Chains | B1: We have businesses that can adapt to the impacts of Climate Change & extreme weather. |
| I | Food security/Global Food Protection | I1: We have a food system that is resilient to the impacts of Climate Change. |

Source: DAERA, 2019. Northern Ireland Climate Change Adaptation Programme 2014-2024.

### 7.5.2 Republic of Ireland

### 7.5.2.1 Climate Action Plan

The Climate Action Plan states Ireland's goal to deliver a "step-change" in emissions performance in line with the objectives of the Paris Agreement and the United Nation's Agenda 2030 Sustainable Development Goals[170]. The plan lays out abatement measures and 2030 targets in relation to five sectors identified to contribute the most to GHG emissions: Agriculture, Transport, Electricity, the Built Environment, and Industry. The plan also reports Ireland's commitment to move towards 70% of electricity needs to be supplied by renewable sources by 2030.

---

[169] DAERA. Northern Ireland Climate Change Adaptation Programme 2019-2024.
[170] Government of Ireland, 2019. Climate Action Plan 2019.

## 7.6 Summary

The agri-food sector plays a vital role to the economies across the IoI.  As a result of the relatively large proportion of economic activity from this sector, both jurisdictions have significantly higher levels of GHG emissions from the agri-food sector relative to the rest of the EU.  In 2018, RoI's percentage of GHG emissions from agriculture was the highest in the EU (31.8%) compared to the UK figure of 8.2%.

To meet carbon reduction targets set out in UK and EU legislation, the IoI must continue to further its efforts to reduce carbon emissions from the agricultural sector.  Both jurisdictions have policies in place which aim to reduce the negative effects on the environment caused by GHG emissions from the agricultural sector (e.g. The Efficient Farming Cuts Greenhouse Gases Implementation Plan 2016-2020 in NI and The Dairy Carbon Navigator in RoI).  Collaboration between government and farmers to adopt and implement efficient farming strategies (such as better livestock management and changes to fertiliser use) will ensure that the IoI moves towards more sustainable farming and reduced GHG emissions in the coming years.

# 8 Food Waste on the Island of Ireland

## 8.1 Introduction

This chapter provides an overview of the key statistics relating to food waste on the IoI. There are varying definitions, however the most commonly accepted one in the UK and EU is from the work of the EU FUSIONS (Food Use for Social Innovation by Optimising Food Waste Prevention Strategies) project which defines food waste as:

> "Any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed (including composting, crops ploughed in/not harvested, anaerobic digestion, bioenergy production, co-generation, incineration, disposal to sewer, landfill or discarded to sea)"[171].

Food waste has been designated a 'data-poor' area and a number of studies across the IoI have noted the difficulty in measuring the amount of food that is wasted across the food supply chain which comprises, according to the UK House of Lords EU Committee investigating food waste prevention, producers and growers, manufacturers and processors, the hospitality sector and retailers and consumers[173]. Nevertheless, this chapter shows data for NI and the RoI where available. Please note that the figures presented are largely drawn from existing studies which do not necessarily represent data at a national level.

## 8.2 Supply chain overview

An estimate of food waste in the EU indicates that approximately 20% of the total food produced was wasted in 2011-12[174]. Table 8.1 shows the contribution of different sectors to food waste in the EU in 2016, with households contributing over half of all wasted food (53%).

---

[171] House of Lords. European Union Committee, 2014. Counting the Cost of Food Waste: EU Food Waste.

[173] EU FUSIONS, 2016. Estimates of European food waste levels.
[174] EU FUSIONS, 2016. Food waste quantification manual to monitor food waste amounts and progression

Table 8.1: Estimates of food waste in the 28 Member States of the European Union in 2016

|  | % food wasted |
|---|---|
| Households | 53 |
| Food service | 12 |
| Wholesale & retail | 5 |
| Processing | 19 |
| Production | 11 |

Source: FUSIONS, 2016. Estimates of European food waste levels

Figure 8.1 shows the nature of the food and drink supply chain from the original producer through to manufacturers, processors, retailers, food service and hospitality (pubs, restaurants, hotels and caterers) and, finally, the consumer. While simplified, this demonstrates that the supply chain involves a multitude of different relationships, depending on the product and the ultimate consumer.
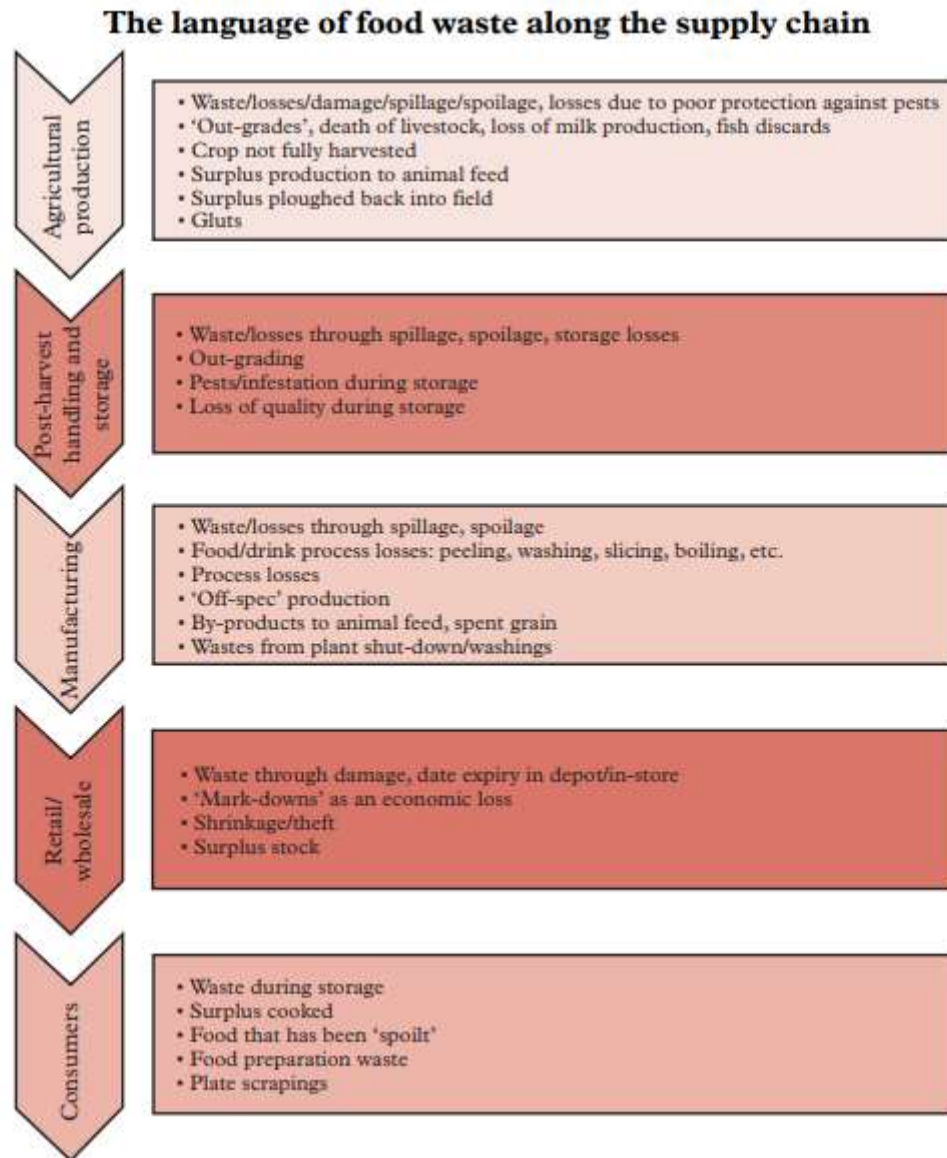
Figure 8.1: Food and drink supply chain
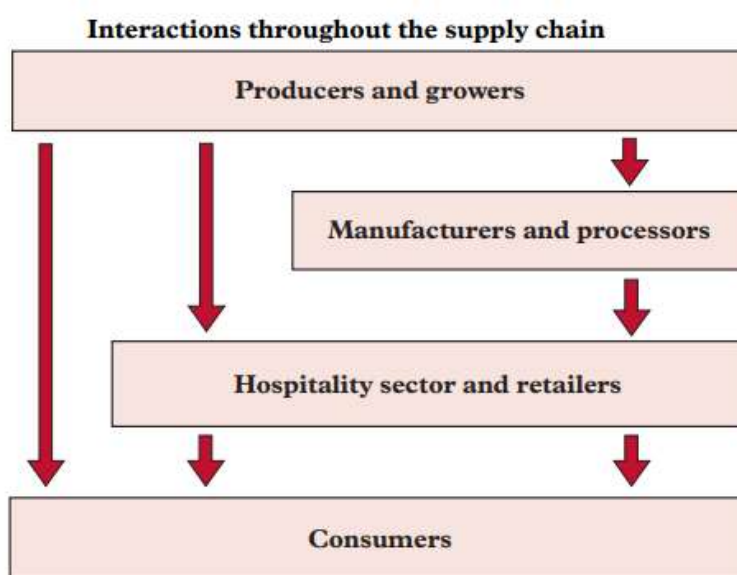


Source: House of Lords European Union Committee, 2014. Counting the cost of Food Waste: EU Food Waste Prevention

Figure 8.2 shows the different stages of the food supply chain and the definitions of food waste associated with each.

Figure 8.2: Definitions of food waste across the supply chain

## The language of food waste along the supply chain

**Agricultural production**
- Waste/losses/damage/spillage/spoilage, losses due to poor protection against pests
- 'Out-grades', death of livestock, loss of milk production, fish discards
- Crop not fully harvested
- Surplus production to animal feed
- Surplus ploughed back into field
- Gluts

**Post-harvest handling and storage**
- Waste/losses through spillage, spoilage, storage losses
- Out-grading
- Pests/infestation during storage
- Loss of quality during storage

**Manufacturing**
- Waste/losses through spillage, spoilage
- Food/drink process losses: peeling, washing, slicing, boiling, etc.
- Process losses
- 'Off-spec' production
- By-products to animal feed, spent grain
- Wastes from plant shut-down/washings

**Retail/ wholesale**
- Waste through damage, date expiry in depot/in-store
- 'Mark-downs' as an economic loss
- Shrinkage/theft
- Surplus stock

**Consumers**
- Waste during storage
- Surplus cooked
- Food that has been 'spoilt'
- Food preparation waste
- Plate scrapings

Source: House of Lords European Union Committee, 2014. Counting the cost of Food Waste: EU Food Waste Prevention

## 8.3 Manufacturing/processing waste

### 8.3.1 United Kingdom

The Food and Drink Federation (FDF) represents the UK food and drink industry, the largest manufacturing sector in the country[175].  A survey was commissioned jointly by FDF and the Waste and Resources Action Programme (WRAP) in 2015 to collect data on food and packaging waste arising from FDF members' manufacturing sites[176].  Previous surveys using a consistent methodology meaning there is also food and packaging packaging waste data available from 2006, 2008, 2009 and 2012.

As part of the survey, FDF member sites were asked to describe the origin of their food waste, both in their segregated food waste and mixed food and packaging waste streams.  Sites were asked to state how much of their food waste is derived from the following sources:

1. Raw materials/ingredients that end up as waste prior to entering food production

2. Food waste from the production process (work in progress), prior to the end of the production process

3. Unpackaged finished products

4. Packaged finished products


Table 8.2 shows the volume of food waste redistributed to people, via charitable and/or commercial routes according to the FDF Members' Waste Survey[177].  The main reasons given for not redistributing more food surpluses were that the material was not suitable for human redistribution, that it raised brand integrity concerns or that the material was sent to animal feed instead.


Table 8.2: Food waste redistribution; United Kingdom Food and Drink Federation Members' Waste Survey 2015

| Type of redistribution | Number of sites | Tonnage redistributed |
|---|---|---|
| Commercial | 24 | 2,810 |
| Charitable | 6 | 51 |
| Total | 25 | 2,860 |

Source: WRAP, 2015. Food and Drink Federation Members' Waste Survey

---

[175] Food and Drink Federation, 2020. Who we are
[176] Food and Drink Federation and WRAP, 2017. Food and Drink Federation Members' Waste Survey.
[177] Caraher and Furey, 2018. The Economics of Emergency Food Aid Provision: A Financial, Social and Cultural Perspective.

Table 8.3 shows the diversion of surpluses to animal feed according to the FDF Members' Waste Survey. Of the 23 sites which responded (and representing 25% of total food production captured in the survey), 43,200 tonnes of surpluses were reported to have been diverted to animal feed.

Table 8.3: Food waste diverted to animal feed; United Kingdom Food and Drink Federation Members' Waste Survey 2015

| Source of diverted material | No. of sites | Total tonnage diverted | % of sites' production diverted to animal feed | |
|---|---|---|---|---|
| | | | Only sites reporting diversion to animal feed | All surveyed sites |
| Surpluses | 23 | 43,200 | 3.8% | 0.9% |

Source: WRAP, 2017. Food and Drink Federation Members' Waste Survey

## 8.4 Household/consumer waste

Table 8.4 shows the quarterly household waste composting rates for NI.

Table 8.4 Composting rate (%) of total Northern Ireland household waste arising, 2015-2019

| | Total household waste arisings (tonnes) | Dry recycling rate (%) | Composting rate (%) |
|---|---|---|---|
| Apr-Jun 2015 | 225,033 | 21% | 24% |
| Jul-Sep-2015 | 228,383 | 20% | 25% |
| Oct-Dec 2015 | 204,611 | 23% | 17% |
| Jan-Mar 2016 | 202,760 | 25% | 14% |
| Apr-Jun 2016 | 231,736 | 22% | 25% |
| Jul-Sep-2016 | 237,799 | 21% | 27% |
| Oct-Dec 2016 | 203,930 | 24% | 19% |
| Jan-Mar 2017 | 202,500 | 25% | 15% |
| Apr-Jun 2017 | 234,904 | 22% | 28% |
| Jul-Sep-2017 | 233,428 | 22% | 29% |
| Oct-Dec 2017 | 207,192 | 24% | 23% |
| Jan-Mar 2018 | 198,732 | 26% | 18% |
| Apr-Jun 2018 | 242,675 | 23% | 30% |
| Jul-Sep-2018 | 228,641 | 23% | 29% |

| | | | |
|---|---|---|---|
| Oct-Dec 2018 | 207,002 | 24% | 24% |
| Jan-Mar 2019 | 200,845 | 26% | 21% |

Source: WRAP, 2017. Food and Drink Federation Members' Waste Survey

### 8.4.1 Municipal waste tracking

#### 8.4.1.1 Northern Ireland

UK estimates for Biodegradable Municipal Waste (BMW) to landfill have been calculated in accordance with the Landfill Directive (1999/31/EC), which aims to prevent or reduce as far as possible negative effects of landfilling waste. BMW is the fraction of municipal waste that will decompose within a landfill to produce methane, a potent greenhouse gas. Amongst other materials it will include food waste, green waste, cardboard and paper.

Within the Landfill Directive the UK has three targets to meet, measured as a percentage of the tonnage of BMW generated in 1995 ('the 1995 baseline') (Tables 8.5 and 8.6). These require the tonnage of BMW to landfill to be:

- No greater than 75% of the 1995 baseline by 2010

- No greater than 50% of the 1995 baseline by 2013

- No greater than 35% of the 1995 baseline by 2020

For this reporting obligation, the UK countries have agreed a set of European Waste Catalogue (EWC) classification codes to represent 'municipal waste'. Countries use broadly similar, but non-identical sets of factors, for the proportion of each EWC code that is biodegradable, based upon composition studies of landfill waste[178].

Table 8.5: Biodegradable Municipal Waste (BMW) to landfill as a percentage of 1995 baseline, United Kingdom and country split, 2010 – 2017

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| England | 36.0 | 32.5 | 28.0 | 25.5 | 23.0 | 20.5 | 20.5 | 19.5 |
| Northern Ireland | 46.0 | 38.0 | 33.0 | 24.0 | 26.0 | 25.0 | 26.0. | 24.5 |
| Scotland | 42.0 | 38.0 | 37.0 | 33.0 | 31.5 | 30.5 | 31.5 | 30.5 |
| Wales | 33.0 | 29.0 | 28.0 | 26.5 | 22.0 | 16.0 | 15.5 | 16.0 |
| UK | 36.0 | 33.0 | 28.0 | 26.0 | 24.5 | 21.0 | 21.0 | 20.5 |

Source: DEFRA, 2020. UK Statistics on Waste

---

[178] DEFRA, Wales2020. UK Statistics on Waste

Table 8.6: Biodegradable Municipal Waste to landfill, United Kingdom and country split, 2010-17

| Year | Measure | UK | England | NI | Scotland | Wales |
|------|---------|-----|---------|-----|----------|-------|
| 1995 | BMW generated (baseline) | 35,688 | 29,030 | 1,225 | 3,494 | 1,837 |
| 2010 | Municipal Waste to Landfill<br>of which BMW to Landfill | 25,019<br>12,982 | 20,298<br>10,339 | 893<br>558 | 2,508<br>1,484 | 1,319<br>600 |
| 2011 | Municipal Waste to Landfill<br>of which BMW to Landfill | 22,879<br>11,725 | 18,421<br>9,360 | 734<br>464 | 2,560<br>1,364 | 1,164<br>538 |
| 2012 | Municipal Waste to Landfill<br>of which BMW to Landfill | 20,260<br>10,372 | 16, 187<br>8,129 | 622<br>394 | 2,429<br>1,327 | 1,023<br>522 |
| 2013 | Municipal Waste to Landfill<br>of which BMW to Landfill | 18,450<br>9,325 | 14,780<br>7,347 | 472<br>299 | 2,244<br>1,182 | 954<br>497 |
| 2014 | Municipal Waste to Landfill<br>of which BMW to Landfill | 17,281<br>8,726 | 13,714<br>6,843 | 511<br>322 | 2,194<br>1,137 | 862<br>424 |
| 2015 | Municipal Waste to Landfill<br>of which BMW to Landfill | 15,605<br>7,693 | 12,215<br>5,980 | 484<br>307 | 2,264<br>1,095 | 642<br>311 |
| 2016 | Municipal Waste to Landfill<br>of which BMW to Landfill | 16,111<br>7,807 | 12,381<br>6,049 | 524<br>331 | 2,306<br>1,140 | 900<br>286 |
| 2017 | Municipal Waste to Landfill<br>of which BMW to Landfill | 15,263<br>7,388 | 11,784<br>5,684 | 539<br>302 | 2,262<br>1,092 | 678<br>311 |

Source: DEFRA, 2020. UK Statistics on Waste

The 1995 target baseline was modelled and agreed in 2010: individual countries may not exactly sum the UK total due to rounding: Minor revisions made to historical figures for the UK and Scotland (2011-2016) and Wales (2016)

The Food Waste Regulations (Northern Ireland) 2015 came into operation on 14th February 2015. The regulations provide for the separate collection and subsequent treatment of food waste and requires NI district councils to (a) provide receptacles for the separate collection of food waste from households, (b) place a duty on food businesses producing in excess of 5kg of food waste per week to present food waste for separate collection, and (c) place a duty on businesses to ensure food waste is not deposited in a lateral drain or sewer. The regulations place a duty on those who transport food waste to collect and transport such waste separately from other waste to ensure that it is not mixed with other waste to the extent that would hamper future recycling. The landfilling of separately collected food waste is prohibited from 1st April 2015[179].

---

[179] https://www.daera-ni.gov.uk/articles/landfill

# 9 Regulation and Enforcement

## 9.1 Introduction

This section provides an overview of the key statistics relating to actions against food businesses, food alerts and food sampling data in RoI and NI.  There is a plethora of legislation and regulations relating to food safety and hygiene in the production, serving and selling of food in both jurisdictions including:

### 9.1.1 Republic of Ireland

- FSAI Act 1998
- EC (Official Control of Foodstuffs) Regulations 2010 (S.I. No. 117 of 2010)
- Regulation (EU) No 652/2014 (OJ L189, p1, 27/06/2014) of the European Parliament and of the Council of 15 May 2014 laying down provisions for the management of expenditure relating to the food chain, animal health and animal welfare, and relating to plant health and plant reproductive material,
- Regulation (EC) No 178/2002 (OJ L31, p1, 1/02/2002) the general principles and requirements of food law.

Authorities with a responsibility for the execution and enforcement of the legislation in RoI include, the Department of Health, the Health Service Executive, the Food Safety Authority Ireland (FSAI), DAFM and local Authorities.

### 9.1.2 Northern Ireland

- Food Safety (Northern Ireland) Order 19911 (the Order)
- Food Hygiene Regulations (Northern Ireland) 2006
- Official Feed and Food Controls Regulations (Northern Ireland) 2009
- Diseases of Animal (Northern Ireland) Order 1981
- Consumer Protection (Northern Ireland) Order 1987
- Regulation (EC) No 852/2004 on the hygiene of foodstuffs
- Directive 93/43/EEC on the hygiene of foodstuffs (Industry Guides to Good Hygiene Practice)

Authorities with a responsibility for the execution and enforcement of the legislation include the Department of Health, the Food Standards Agency, DAERA Affairs and local Authorities.

## 9.2 Inspections and enforcements

### 9.2.1 Republic of Ireland

The FSAI is responsible for the enforcement of food safety legislation in RoI. It works with other agencies to conduct inspections of food business, including County Councils and the Environmental Health Service (EHS) within the Health Service Executive (HSE). Between 2014 and 2018, in the region of 50,000 inspections of food businesses were carried out each year in RoI (Table 9.1). The majority of these were made by the EHS.

Table 9.1: Inspections of food businesses in the Republic of Ireland, 2014-2018

| Official Agency | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Health Service Executive (Environmental Health Service) | 35,053 | 36,353 | 35,786 | 33,193 | 32,254 |
| Dept. of Agriculture, Food and the Marine | 15,021 | 15,011 | 11,985 | 11,569 | 10,826 |
| Local authorities | 4,802 | 5,033 | 4,870 | 4,891 | 4,582 |
| Sea-Fisheries Protection Authority | 2,035 | 2,015 | 2,228 | 2,245 | 2,122 |
| National Standards Authority of Ireland | 77 | 61 | 72 | 84 | 62 |
| Total number of food business inspections | 56,988 | 58,473 | 54,941 | 51,982 | 49,846 |

Source: FSAI Annual Reports. E.g. https://www.fsai.ie/resources_publications.html

As noted above inspections by EHS and DAFM account for the majority (86%) of inspections in 2018. Inspections include premises such as businesses serving food, food producers and abattoirs.

Once food businesses have been inspected each agency has a range of actions which they may enforce if food hygiene standards are not met or food safety legislation is not adhered to[180]. Enforcement powers include:

- Improvement Notice: when an Authorised Officer is of the opinion that a premises or practice is of such a nature that, if it persists, it will or is likely to pose a risk to public health, for example any activity involving the handling, preparation etc. of food or, the condition of a premises (or part thereof) where this activity takes place is such that if it persists, it will or is likely to pose a risk to public health (data on improvement notices is not published).
- Improvement Order: is issued when improvement notices have not been complied with.

---

[180] Source: FSAI, 2020: Enforcement Powers.

- Closure Order: is issued if in the opinion of the Authorised Officer, there is or there is likely to be a grave and immediate danger to public health at/or in the food premises.
- Prohibition Order: is issued if the activities (handling, processing, disposal, manufacturing, storage, distribution or selling food) involve or are likely to involve a serious risk to public health from a particular product, class, batch or item of food.  The effect is to prohibit the sale of the product, either temporarily or permanently.

Table 9.2 provides data on the number of enforcements in RoI over the period 2015-2019.

Table 9:2: Enforcement Actions against Food Businesses in the Republic of Ireland, 2015-2019

| Year | Closures | Improvements | Prohibition | Total |
|------|----------|--------------|-------------|-------|
| 2015 | 90 | | 16 | 106 |
| 2016 | 94 | 3 | 9 | 106 |
| 2017 | 64 | 1 | 4 | 69 |
| 2018 | 95 | 5 | 10 | 110 |
| 2019 | 108 | 4 | 13 | 125 |

Source: FSAI, 2020.  Enforcement Powers.

### 9.2.2 Northern Ireland

The FSA in NI is responsible for the enforcement of food hygiene legislation and monitoring and reporting on the performance of local authority (LA) food law enforcement services in NI.  Almost 22,000 food establishments were registered with the FSA in 2018/19 as shown in Table 9.3.

Table 9.3: Food businesses in Northern Ireland registered with the FSA: five years trend to 2018/19

| Year | Primary producers | Manufacturers & Packers Importers | Exporters Distributors | Transporters Retailers | Retailers | Restaurants & Caterers | Total |
|------|-------------------|-----------------------------------|------------------------|------------------------|-----------|------------------------|-------|
| 2018/19 | 164 | 1,284 | 48 | 432 | 4,021 | 15,860 | 21,809 |
| 2017/18 | 106 | 1,252 | 49 | 432 | 4,030 | 15,781 | 21,650 |
| 2016/17 | | | | | | | |
| 2015/16 | | | | | | | |
| 2014/15 | 52 | 1,122 | 46 | 431 | 4,210 | 14,620 | 20,481 |

Source: FSA, 2019. Local Authority Food Law Enforcement Report.

In 2018/19, 7,351 inspections of food business were conducted – an increase of 569 since 2014/15.  By contrast, 58 enforcement actions were made in 2018/19 compared to 98 in 2014/15 (Table 9.4)[181].

Table 9.4: Number of establishments subject to food standards enforcement actions in Northern Ireland.

| | 2018/19 | 2017/18 | 2016/17 | 2015/16 | 2014/15 |
|---|---|---|---|---|---|
| Inspections made | 7,351 | 8,553 | TBC | 6,038 | 6,782* |
| Voluntary closure | 10 | 13 | 5 | 15 | 6 |
| Seizure, detention & surrender of food | 17 | 31 | 33 | 42 | 26 |
| Suspension/revocation of approval or licence | 0 | 0 | 1 | 3 | 0 |
| Hygiene emergency prohibition notice | 0 | 1 | 1 | 3 | 0 |
| Hygiene prohibition order | 0 | 1 | 0 | 2 | 0 |
| Simple caution | 3 | 2 | 0 | 14 | 9 |
| Hygiene improvement notices | 10 | 14 | 19 | 45 | 31 |
| Remedial action and detention notice | 12 | 7 | 16 | 14 | 14 |
| Prosecutions concluded | 6 | 3 | 9 | 10 | 9 |
| TOTAL | 58 | 72 | 84 | 148 | 95 |

Source: FSA, 2019. Local Authority Food Law Enforcement Report.

## 10.6 Consumer complaints

In 2019, the FSAI advice line received 3,461 complaints about food[182].  As can be seen in Table 9.5, this was the highest number since 2013.

Table 9.5: Complaints to the Food Safety Authority of Ireland advice line (2013-2018)

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|
| No. of complaints | 2846 | 2738 | 2739 | 3202 | 3400 | 3424 | 3461 |

Data sources: FSAI Press releases [226,183,184,185,186].

---

[181] FSA, 2019. Local Authority Food Law Enforcement Report.
[182] FSAI, 2020. FSAI Advice Line Received 3,460 Food Complaints in 2019.
[183] FSAI, 2015. FSAI Advice Line Received 14,348 Queries and Complaints in 2014.
[184] FSAI, 2018. FSAI Advice Line Received 3,400 Food Complaints in 2017.
[185] FSAI, 2017. FSAI Advice Line Received 3,202 Food Complaints in 2016.
[186] FSAI, 2016. FSAI Advice Line Received 2,739 Food Complaints in 2015.

In 2019, over half of complaints were related to complaints of unfit food and poor hygiene standards. A considerable increase was also noted from 2018 among issues relating to poor hygiene standards at 19% and suspected food poisoning incidents were up 8%.

Consumer complaints ranged from reports of food unfit to eat, to non-display of allergen information:

- 1,134 complaints on hygiene standards
- 1,082 complaints on unfit food
- 792 complaints on suspect food poisoning
- 149 complaints on incorrect information on food labelling
- 135 complaints on non-display of allergen information
- 113 other

Contamination of food with foreign objects was frequently reported by consumers. In 2019, these reports included allegations of food containing insects, plastics and other foreign objects. Complaints regarding poor hygiene standards in food premises cited live mice and evidence of rodent activity throughout food handling and storage areas, staff failing to wash their hands when cooking and serving food, pigeons in the deli area, and flies noted throughout a premises.

## 10.7 Alerts

In 2019, the FSAI dealt with 679 food incidents, resulting in 107 food alerts and food allergen alerts issued as a consequence (Table 9.6). In 2019, 55 food alerts were issued. These were due to either product recalls or withdrawals from the Irish market for various reasons including microbiological, chemical contamination, foreign body contamination or mislabelling.

Table 9.6: Food alerts and food allergen alerts in the Republic of Ireland (2016-2019)

|      | Food alerts | Food allergen alerts | Total alerts |
|------|-------------|----------------------|--------------|
| 2016 | 39          | 28                   | 67           |
| 2017 | 24          | 30                   | 54           |
| 2018 | 51          | 45                   | 96           |
| 2019 | 55          | 52                   | 107          |

In 2019, 52 food allergen alerts were issued. In the EU, there are 14 specified foods that can cause allergies or intolerances that must be labelled/declared if used as ingredients. Incorrect labelling may trigger a food allergen alert. In the RoI, milk, cereals, eggs and nuts were amongst the most common allergens incorrectly labelled/declared in 2019. The main reasons for these alerts were (a) the allergen was a contaminant in the product and therefore not highlighted on the ingredients label, (b) the ingredients list/label was not in English, (c) the product was packed in the wrong pack, or (d) the allergen ingredients were not properly highlighted.

## 9.3 Food alerts

Food alerts are notifications issued by the FSAI and the FSA to official agencies and food businesses or other businesses relating to an identified hazard i.e. a biological, chemical or physical agent in, or condition of, food/food contact materials with the potential to cause an adverse health effect. Food safety information may also be communicated between the European Commission and member states using the Rapid Alert System for Food and Feed (RASFF).

Food alerts relate to an identified hazard in food or food contact materials with potential to cause an adverse health effect. Examples of recent food alerts have included *E. coli* O26 in unpasteurized cheese; metal pieces in prepared dishes; foods found to contain insects; detection of Listeria *monocytogenes* in products such as poultry and dairy and Salmonella in hummus. Allergen alerts relate to the presence of ingredients such as milk, cereals, eggs or nuts in a product which is incorrectly labelled or not declared in food products.

The number of allergen alerts issued between 2017 and 2018 increased by 50%. There are a number of potential reasons for this: in September of 2018 the FSAI ran an allergen campaign for the second consecutive year which led to an increase in the number of enforcement actions taken by food inspectors against those food businesses that ignored their legal obligations and increased risks to consumers. It is likely that this will have raised awareness and impacted on the number of alerts issued.

Data from across Europe is also published on the RASFF portal. Table 9.7 provides an overview of the notifications that originated in RoI and the UK over the past five years. Data on RASFF is not available specifically for NI; only at UK level.

---

[187] FSAI, 2019. FSAI Issued a Total of 107 Food Alerts and Food Allergen Alerts in 2019.
[188] FSAI, 2017. FSAI Publishes 2016 Annual Report.
[189] FSAI, 2018. ANNUAL REPORT 2018.

Table 9.7: RASFF Notifications originating from the Republic of Ireland and the United Kingdom 2015-2019

| Notification Type | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RoI | UK | RoI | UK | RoI | UK | RoI | UK | RoI | UK |
| Alert | 24 | 35 | 15 | 41 | 28 | 50 | 10 | 74 | 19 | 57 |
| Border rejection | 12 | 251 | 5 | 243 | 6 | 275 | 0 | 193 | 0 | 232 |
| Information/news/other | 21 | 51 | 11 | 65 | 34 | 49 | 19 | 86 | 15 | 98 |
| Total notifications | 57 | 337 | 31 | 349 | 68 | 374 | 29 | 353 | 34 | 387 |

Source: RASFF Portal, 2020: https://webgate.ec.europa.eu/rasff-window/portal/

Overall, there is a decline in the number of notifications issued from RoI with the exception of 2017, when there was almost double the number of alerts issued compared to 2016.  Alerts included issues such as undeclared allergens, foreign objects (e.g. pieces of plastic in foodstuffs) and salmonella.

Generally speaking there is an upward trend in the number of notifications in the UK with the exception of 2018, when there was an increase in the number of alerts but a decrease in the number of border rejections.  As with RoI, alerts tended to relate to issues such as undeclared allergens, foreign objects (e.g. glass and plastic particles in food) and salmonella.


## 9.4 Sampling data

There are a number of European Commission Directives which set out the frequency at which various food stuffs should be sampled.  For example. Regulation (EC) No 2073/2005 sets down a fixed weekly sampling frequency for the food business operators for certain products, such as carcases, minced meat, meat preparations and mechanically separated meat[190].


### 9.4.1 Republic of Ireland

The FSAI annual report provides information on the level and range of sampling activities undertaken as part of their remit to ensure "Food and food safety, integrity and wholesomeness at any stage of production, processing and distribution of food"[191].  RoI sampling data for 2015-2018 is shown in Table 9.8.

---

[190] European Commission, 2006. Guidance document on official controls, under Regulation (EC) No 882/2004, concerning microbiological sampling and testing of foodstuffs.
[191] FSAI Annual Report 2018.

Table 9.8: Sampling activity the Republic of Ireland for 2015-2018

| Sampling Agency | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| DAFM | 30,333 | 31,456 | 32,947 | 35,983 |
| HSE EHS | 13,744 | 12,330 | 11,699 | 11,678 |
| Sea-Fisheries Protection | 8,229 | 9,004 | 8,353 | 8,386 |
| Local Authority | 3,107 | 2,388 | 3,306 | 3,195 |
| Other Agencies | 1,262 | 520 | 1,335 | 4,597 |
| Total | 56,675 | 56,588 | 57,640 | 63,839 |

Source: The Food Safety Authority of Ireland (FSAI). Annual Report 2018. p28.

Sampling activity in RoI has been steadily increasing over the period 2015-2018, rising to almost 64,000 in 2018.  As with inspections, the majority of sampling is conducted by the EHS and DAFM (75% in 2018).  Sampling involves a number of different tests including microbiological, testing for pesticides, contaminants and labelling.  For example in 2018, 41,706 microbiological tests were completed which included 10,029 samples of dairy products for Salmonella monitoring, hygiene monitoring and process hygiene[192].

### 9.4.2 Northern Ireland

Local Authorities are required to test samples of food to enforce food hygiene legislation and to assist in the protection of public health in line with their responsibilities around food law.  Food sampling enables the collation of information about the quality and safety of food produced, handled and sold that local government district.  Approximately 50% of food for sale in the UK is imported.  The FSA requires all local authorities to take steps to ensure imported food has been legally introduced and that it is safe for the consumer. Table 9.9 provides an overview of the official sampling of food stuffs undertaken in NI over the period 2014/15-2018/19.

---

[192] FSAI, 2018. Annual Report submitted by Ireland for the period from 1 January 2018 to 31 December 2018.

Table 9.9: Annual sampling data for Northern Ireland over the period 2014/15-2018/19

| | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 |
|---|---|---|---|---|---|
| Microbiological contamination | 6308 | 5961 | 6616 | 6059 | 6419 |
| Composition | 1307 | 1758 | 1971 | 2142 | 1902 |
| Other contamination | 284 | 308 | 29 | 29 | 26 |
| Labelling & presentation | 556 | 1138 | 1550 | 1839 | 1300 |
| Other & unspecified | 470 | 714 | - | 184 | 279 |
| Total samples | 7881 | 8333 | 8909 | 8693 | 9072 |

Source: FSA. Local Authority Enforcement Monitoring System (LAEMS) Annual reports.

Each year, the most frequent sampling tests related to microbiological contamination with at least 5,900 test completed annually. The total number of sampling tests completed each year has increased annually rising to 9,000 in 2018/19.

## 9.5 Summary

There is a range of legislation and EC Directives that apply in RoI and NI to ensure that food and drink is safe. There is also a considerable level of associated activity on the IoI relating to enforcement and surveillance of food safety legislation.

In 2018 over 57,000 inspections of food businesses were made across the IoI resulting in 168 enforcements including 105 closures of food businesses. Sampling is also a key activity of both the FSAI and FSA and in 2018 over 72,000 food samples were tested across the IoI. Whilst separate data is not available for NI from the RASFF portal, it does show that in 2019 there were 34 RASFF notification originating from RoI, down from 57 in 2015.

# 10 Food Safety

## 10.1 Introduction

This chapter begins with an introduction to food safety issues throughout the world and common causes of foodborne illness. After this, attitudinal and behavioural data from the IoI is presented. This data looks at issues such as food safety among consumers and food business, as well as food preparation and storage behaviours.  Comparative zoonoses data is presented as RoI, NI, UK and EU average rates.  Consumer complaints and alerts data for RoI is presented as well as worldwide foodborne illness death rate data.

## 10.2 Worldwide context

The most recent report estimating global rates of foodborne diseases was published by the World Health Organization (WHO) in 2015[193].This publication was the first of its kind to estimate global rates of foodborne disease. The report stated that an estimated 600 million people (almost 1 in 10 people) fall ill after eating contaminated food each year and approximately 420,000 people die annually. 30% of deaths from foodborne diseases occur among children under 5 years of age (despite this age group only accounting for 9% of the global population). WHO estimate that 33 million years of healthy lives are lost globally each year due to eating unsafe food and that this is likely an underestimation.

Diarrhoeal diseases are responsible for more than half of the global burden of foodborne diseases causing 550 million people to fall ill and 230,000 deaths each year. Children are at particular risk of foodborne diarrhoeal diseases with 220 million falling ill and 96,000 dying annually[194]. Globally, diarrhoea is often caused by eating raw or undercooked meat, eggs and dairy products contaminated by norovirus, *Campylobacter*, non-typhoidal *Salmonella* and pathogenic *E. coli*.

Other major contributors to the global burden of foodborne illnesses are typhoid fever, hepatitis A, *Taenia solium* (a tapeworm), and aflatoxin. Certain diseases, such as those caused by non-typhoidal *Salmonella*, are a public health concern across all regions of the world, in both high- and low-income countries. Other diseases, such as typhoid fever, foodborne cholera, and those caused by pathogenic

---

[193] World Health Organization (WHO), 2015. WHO estimates of the global burden of foodborne diseases.
[194] World Health Organization (WHO), 2015. WHO's first ever global estimates of foodborne diseases find children under 5 account for almost one third of deaths.

*E. coli*, are much more common in low-income countries, while *Campylobacter* is an important pathogen in high-income countries[195].

Foodborne diseases can cause short-term symptoms, such as nausea, vomiting and diarrhoea (commonly referred to as food poisoning), but can also cause longer-term illnesses, such as cancer, kidney or liver failure, brain and neural disorders. These diseases may be more serious in children, pregnant women, and those who are elderly or have a weakened immune system.  Low-income areas are more likely to be negatively affected by foodborne illnesses. This is linked to preparing food with unsafe water; poor hygiene and inadequate conditions in food production and storage, lower levels of literacy and education, and insufficient food safety legislation or implementation of such legislation. However, higher income countries are also significantly affected by foodborne disease. Increased product shelf-life and globalisation have led to longer and vastly more complicated food chains potentially presenting greater opportunity for contamination and microbial growth to occur (Walsh & Leva, 2019)[196]. Despite innovative and comprehensive modern systems that are now used to manage food safety and assess risks, food contamination still occurs across the world. Contamination of food, through both human error and organic causes can undermine even the most carefully prepared and executed HACCP (Hazard analysis and critical control point) system.

### 10.2.1 Data availability

This chapter sets out the rates of foodborne diseases across the IoI, based on available data. However, as Codex Alimentarius (a collection of internationally recognised standards for food) notes, obtaining reliable data is difficult for a number of reasons. For example, many people do not consult a doctor after getting ill from food they have consumed[197]. Therefore, the true magnitude and cost of foodborne diseases are often unknown due to cases not being reported, investigated or recognised. At the 41st Codex Alimentarius Commission in 2019, calls were made for countries across the globe to build capacity in regards to foodborne illnesses, which would improve data collection policies. Nonetheless, this chapter outlines important and comparable food safety data for RoI, NI and the UK. This data has been gathered from a range of sources that are cited throughout the chapter.

---

[195] World Health Organization (WHO), 2015. WHO's first ever global estimates of foodborne diseases find children under 5 account for almost one third of deaths.
[196] Walsh and Leva, 2019. A review of human factors and food safety in Ireland.
[197] Food and Agricultural Organization of the United Nations. Codex Alimentarius, 2018. "How many cases of foodborne disease are there in your country?"

## 10.3 Attitudinal and behavioural data

### 10.3.1 Food Standards Agency Biannual Public Attitudes Tracker survey NI

FSA conducts a tracking survey in NI to measure self-reported food-related activities. The latest results are based on 467 interviews[198].  The survey found that:

- 71% of respondents agreed that 'I am unlikely to get food poisoning from food prepared in my own home'.

- 33% of respondents agreed that 'If you eat out a lot you are more likely to get food poisoning'.  This was lower than in England (42%) or Wales (39%).

- 77% of respondents agreed that 'Restaurants and food establishments should pay more attention to food hygiene'.

- 21% of respondents agreed that 'I often worry about whether the food I have is safe to eat'.

- 46% of respondents agreed that 'When preparing food, I could be more careful about hygiene'.

Table 10.1 shows the extent of agreement among NI respondents to food safety statements.

Table 10.1: Agreements with food safety statements: FSA Tracking Survey Northern Ireland, 2019

| Statement | Agree (%) | Disagree (%) |
|---|---|---|
| I always avoid throwing away food | 63 | 23 |
| I am unlikely to get food poisoning from food prepared in my own home | 71 | 16 |
| If you eat out a lot you are more likely to get food poisoning | 33 | 38 |
| Restaurants and catering establishments should pay more attention to food safety | 77 | 8 |
| I often worry about whether the food I have is safe to eat | 21 | 63 |
| When preparing food I could be more careful about hygiene | 46 | 43 |

Source: FSA NI, 2019. Biannual Public Attitudes Tracker.

---

[198] Food Standard's Agency (FSA), 2019. The Food and You Survey Wave 5 Northern Ireland report.

### 10.3.2 Food Standards Agency Biannual Public Attitudes Tracker survey UK

In terms of the broader UK population, the FSA conducts the same biannual food tracker survey across the UK with consumers to monitor changes in attitudes towards food-related issues[199]. The latest survey was conducted in November 2019[200]. According to this survey, the top food safety issues of concern for those surveyed were:

- Chemicals from the environment, such as lead, in food (32%)

- Food hygiene when eating out (31%)

- The use of pesticides to grow food (31%)

- Food poisoning (28%)

Awareness of different types of food poisoning has gradually increased in the last two years of this survey. While awareness of Salmonella (now 92%) and *E. coli* (86%) were already relatively high, awareness of norovirus (60%) and listeria (61%) have increased by 8 and 15 percentage points since November 2017, respectively. See Table 10.2 below for trends in relation to this.

Table 10.2: Awareness of different types of food poisoning bacteria: FSA Tracking Survey, United Kingdom, 2019

| Tracking survey | Salmonella | E. coli | Listeria | Norovirus |
|---|---|---|---|---|
| Wave 16 – Nov 2017 | 89 | 82 | 47 | 53 |
| Wave 17 – May 2018 | 91 | 85 | 51 | 56 |
| Wave 18 – Nov 2018 | 89 | 82 | 50 | 50 |
| Wave 18 – May 2019 | 90 | 84 | 52 | 59 |
| Wave 19 – Nov 2019 | 92 | 86 | 61 | 60 |

Source: FSA NI, 2019. Biannual Public Attitudes Tracker.

---

[199] FSA NI, 2019. The Food and You Survey (November 2019).
[200] FSA NI, 2019. Biannual Public Attitudes Tracker.

In terms of where participants anticipate most danger around food, 45% of respondents reported concern about food safety in UK restaurants, pubs, cafes and takeaways and 40% of respondents reported concern about food safety in UK shops and supermarkets. To our knowledge, there is no directly comparable data relating to RoI.

### 10.3.3 Food safety knowledge and skills among SMEs on the island of Ireland

In 2018, *safe*food published research about food safety knowledge and skills among SMEs on the IoI[201]. Based on surveys, interviews and food safety audits, the research found that:

- When asked to rate their understanding of the current obligations with regard to food safety requirements, 79% of participants rated themselves as aware of their obligation;

- The majority of food sector SMEs (95%) had received formal training in food safety and HACCP;

- Most respondents demonstrated a good knowledge of food safety and the purpose behind food safety regulation;

- Despite demonstrating an understanding of food safety, a clear majority of food sector SMEs described the challenges in meeting current food safety requirements, particularly the amount of paperwork and time involved;

- 117 of 150 businesses audited (78%) demonstrated good practices and far outweigh those who recorded critical issues. Nonetheless, 22% recorded critical issues.

To our knowledge, there is no available data that breaks these findings into NI and RoI.

### 10.3.4 Safetrak

Based on advertising tracking research by Ipsos MORI on behalf of *safe*food in 2017, positive findings were recorded in terms of food safety, with 71% of consumers in RoI feeling well informed about food safety issues[202]. Despite this, 51% of consumers in RoI and 53% of consumers in NI said they were concerned about food safety. According to this research, the three food issues that are of most concern to consumers in NI and RoI are:

1. Food poisoning (Salmonella/ Listeria/ E.coli)

---

[201] *safe*food, 2018. Food Safety knowledge and skills among SMEs on the island of Ireland.
[202] Ipsos MRBI, 2017. Safetrak Research prepared for Safefood.
www.safefood.eu/SafeFood/media/SafeFoodLibrary/Documents/Publications/Market%20Research/16-088947-Safetrak-Research-Web-Version_FINAL.pdf

2. Additives/ E-numbers/ Dyes/Preservatives

3. Chicken (preparation)

The three places that consumers are most concerned about in relation to food safety are:

1. Chip vans

2. Takeaway/ fast-food outlets

3. Market stalls

The three foods that consumers are most concerned about are:

1. Chicken/ Poultry

2. Shellfish

3. Red meat

### 10.3.5 The Food Safety Authority of Ireland

## 10.3.5.1 Consumer research

In February 2019, the FSAI launched its vision and strategy for the next 5 years and the findings from a survey which was designed to capture consumer attitudes of food safety and hygiene, shopping habits and eating out, and concerns around food and the food industry[203,204]. The survey findings demonstrated confidence in the safety of Irish food with nine out of ten people (89%) saying food is as safe or safer than it was five years ago. However, consumers also admitted that they are prone to risky behaviours in relation to food handling at home with 45% of those surveyed saying they do not pay full attention to 'use-by' dates and 72% claiming they have used food past its 'use-by' date. 62% said they left leftovers to cool out of the fridge overnight, to eat in the next couple of days, with nearly half (49%) storing food in the fridge without any wrapping.

## 10.3.5.2 Business research

In another survey, in which results have also only been published through press releases[205], the FSAI researched food businesses in Ireland[206]. For these businesses, food safety and staffing are the top concerns[207]. Results of this survey found that:

---

[203] FSAI, 2019. Strategy 2019–2023.
[204] FSAI, 2019. Ireland's Food Safety Authority Marks 20 Years with New National Roadmap for Consumer Food Safety Protection.
[205] Contacted the FSAI to obtain the raw data, but did not receive a response.
[206] FSAI, 2019. Food Safety and Staffing Among Top Concerns for Food Businesses in Ireland.
[207] FDI, 2019. Food safety and staffing top concerns for Irish food businesses.

- 7 out of 10 food businesses are increasingly confident about food safety regulation in Ireland, with almost three quarters (73%) stating that food produced in Ireland is safer than it was five years ago[208];

- Allergens and ingredients labelling comes out on top as the greatest food safety worry, with over half (53%) listing it as one of their top three concerns;

- Food hygiene and handling requirements (36%) and carcinogenic chemicals in foods (30%) also ranked highly amongst those surveyed;

- There is a strong confidence in food safety measures among the industry, however, around one fifth (18%) are calling for more food safety regulation and enforcement;

- Around one third (31%) of food businesses do not feel well enough informed in terms of food safety information, despite a high proportion claiming to cover this in-house or via consultants.


### 10.3.6 A study of food safety knowledge, practice and training among food handlers in Ireland

Gruenfeldova et al. (2019) published a recent journal article in *Food Control* about food safety knowledge, practice and training among food workers in Ireland[209]. These researchers found that:

- Knowledge of food safety was higher among those who had a higher level of food safety training, had worked in the industry for longer and had a higher level of job, such as 'head chef';

- 28% of participants said they have 'never' received food safety training;

- 59% had received level 3 food safety training;

- Nearly all those who worked in a canteen had food safety training;

- Individuals working in canteens were found to have the highest knowledge score (81%) and the highest percentage of level 3 training (60%).

- When specific questions regarding foodborne pathogens were asked in this study, head chefs, managers & supervisors reported being familiar with *Salmonella* (98%), *E. coli* (90%) and *L. monocytogenes* (71%). Similarly, Bolton et al. (2008) reported that head chefs and catering

---

[208] FSN, 2019. Survey shows firms increasingly confident about Irish food safety regulation.
[209] Gruenfeldova, J., Domijan, K. & Walsh, C. (2019). A study of food safety knowledge, practice and training among food handlers in Ireland. Food Control, 105, 131-140.

managers were more familiar with pathogens like *Salmonella* (100%) and *E. coli* (98%), than *L. monocytogenes* (84%) in a previous Irish survey[210].

- A relatively high proportion of respondents (93%), (similar to 88% reported by Panchal et al., 2013[211]), considered it to be unacceptable for a food handler who is suffering from diarrhoeal illness to handle raw food prior to cooking (it also indicated that 7% consider this practice acceptable).

- Similarly, 91% reported it was unacceptable to prepare ready-to-eat food while suffering with diarrhoea/vomiting, suggesting 9% consider this practice acceptable. These findings are notable, as based on these data, almost 1 in 10 respondents surveyed believe that it is an acceptable practice to handle food while unwell.

## 10.4 Rates of Zoonoses in the Republic of Ireland, Northern Ireland, the United Kingdom and the European Union

Data here is obtained from the EU's most recent Zoonoses report[212], the HPSC annual epidemiological reports[213], the European Centre for Disease Prevention and Control' annual epidemiological reports[214], and the Public Health Agency (Northern Ireland) (PHA) data[215]. As can be seen in the data that follows, NI-specific data is usually one year behind the publication of data in RoI, the UK and the EU. Aside from this, rates of Zoonoses in the respective regions can be directly compared. In some instances, such as data relating to outbreaks and clusters, only RoI-specific data is presented as there is no available data for NI.

### 10.4.1 Campylobacteriosis

Campylobacteriosis is an acute zoonotic bacterial disease characterised by diarrhoea, abdominal pain, malaise, fever, nausea and vomiting. It is the most common bacterial cause of gastroenteritis in Ireland and Europe. Risk factors for campylobacteriosis include handling raw poultry or eating raw or undercooked poultry meat. Drinking contaminated untreated water or unpasteurised milk may also spread campylobacteriosis.

---

[210] Bolton D.J., Meally A., Blair I.S., McDowell D.A. and Cowan C., Food safety knowledge of head chefs and catering managers in Ireland, Food Control, Vol. 19 Issue 3, 2008.
[211] Panchal, P.K., Bonhote, P., & Dworkin, M.S. Food safety knowledge among restaurant food handlers Switzerland. Switzerland Food Protection Trends, 33 (3) (2013), pp. 133-144
[212] EU One Health, 2018. Zoonoses report.
[213] HPSC, 2018. Annual Epidemiological Reports.
[214] European Centre for Disease Prevention and Control, 2018. Annual Epidemiological Reports (AERs)
[215] HSC, 2020. Gastrointestinal infections.

Table 10.3 shows the 5-year trends (where data is available) for Campylobacteriosis in the RoI, NI, the EU total rate and for the UK (including NI).  The rate for the RoI has, for the past number of years, been lower than the rate in the UK, NI and the EU in general. The rates in the UK are significantly higher than rates for both the RoI and the EU. NI rates are higher than those in the RoI and the EU, but less than overall UK rates.

Table 10.3: Reported human cases of campylobacteriosis and notification rates per 100,000 population in the Republic of Ireland, Northern Ireland, the United Kingdom and the European Union (2014–2018)

|         | 2014  | 2015 | 2016 | 2017 | 2018 |
|---------|-------|------|------|------|------|
| Ireland | 56.3  | 52.4 | 53.1 | 58.1 | 63.0 |
| NI      | 77.0  | 71.0 | 68.0 | 76.0 | -    |
| UK      | 103.7 | 92.2 | 90.1 | 96.1 | 98.4 |
| EU      | 66.3  | 63.0 | 66.4 | 64.9 | 64.1 |

Data Source: EU One Health Zoonoses report (2018); HPSC Ireland data (2019); PHA NI data (2018).

Focusing on the rates in the RoI, Table 10.4 below shows the country's rate of campylobacteriosis between 2004 and 2018.  As can be seen, there has generally been a slight upward trend, with 2018 seeing the highest rates since 2004.  According to the HPSC, this is due to increases in the number of cases reported in the HSE-North East (+29%), HSE-South (+14%) and HSE-East (+15% regions).

Table 10.4: Campylobacteriosis rates (cases per 100,000 population) in the Republic of Ireland (2004-2018)

| Cases / 100,000 population | | | | | |
|------|------|------|------|------|------|
| Year | 2004 | 2005 | 2006 | 2007 | 2008 |
| Rate | 40.0 | 41.0 | 41.5 | 42.0 | 40.1 |
| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
| Rate | 39.0 | 37.0 | 52.0 | 51.0 | 50.0 |
| Year | 2014 | 2015 | 2016 | 2017 | 2018 |
| Rate | 52.5 | 50.0 | 51.0 | 58.0 | 62.0 |

Source: HSPC, 2019. Campylobacter HPSC Annual Report 2018

2018 was the eighth consecutive year in which campylobacteriosis levels were elevated compared with rates reported between 2004 and 2010.

## 10.4.1.1 Outbreaks and clusters

According to the latest HPSC Campylobacter Annual Report for RoI, during 2018 there were five notified outbreaks of campylobacteriosis. Two general outbreaks in long term care facilities were suspected to be foodborne; 11 people were reported ill between the two outbreaks, three of whom were laboratory confirmed. An outbreak of two laboratory confirmed cases linked to a hotel were also believed to be foodborne. The remaining two outbreaks comprised a general travel-related outbreak with three confirmed cases and a family outbreak with three laboratory confirmed cases; the transmission route was reported as unknown for both of these outbreaks.

### 10.4.2 Salmonellosis

Salmonellosis typically presents clinically as an acute enterocolitis, with sudden onset of abdominal pain, diarrhoea, nausea, headache and occasionally vomiting. Fever is almost always present. Dehydration, especially among vulnerable populations such as infants, the immunocompromised and the elderly, may be severe. Invasive infection occurs in a proportion of cases. The common sources of non-typhoidal Salmonella are the intestinal tract of domestic and wild animals (including birds) which may result in a variety of foodstuffs, of both animal and plant origin, becoming contaminated with faecal organisms either directly or indirectly. Infected food handlers may also act as a source of contamination for foodstuffs[216].

The overall incidence of salmonellosis in Ireland remains low compared to other parts of Europe. Table 10.5 below shows the rate of salmonellosis cases and notifications per 100,000 of the population in the RoI, NI, the EU and the UK (including NI)[217]. The rate of salmonellosis in RoI and NI is lower than rates for the EU and the UK, and has been for the past number of years. Generally, rates in RoI and NI are half the UK rate and almost 3 times lower than the EU rate.

Table 10.5: Reported human cases of salmonellosis and notification rates per 100,000 population in the Republic of Ireland, Northern Ireland, the United Kingdom and the European Union (2014-2018)

|         | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|
| Ireland | 5.6  | 5.8  | 6.3  | 7.9  | 7.3  |
| NI      | 6.0  | 6.7  | 7.6  | 6.8  | -    |
| UK      | 12.6 | 14.6 | 15.1 | 15.4 | 14.3 |
| EU      | 20.7 | 21.0 | 20.5 | 19.7 | 20.1 |

---

[216] HPSC, 2019. Salmonellosis Annual Report (2019)
[217] All UK rates in this report include NI; UK rates are not published by region.

Data Source: EU One Health Zoonoses report (2018); HPSC Ireland data (2019); PHA NI data (2018).

In the RoI in 2018, there were 363 cases of salmonellosis notified (349 confirmed and 14 probable). The HPSC identified both animal contact and travel as risks for being infected by salmonellosis. According to their annual salmonellosis report, the HPSC reported 58% of cases involved contact with pets, wildlife, farm animals or pet food. In addition, 51% of cases were associated with travel.

Table 10.6 shows the trends in the annual number of notifications and crude incidence rate per 100,000 in RoI between 2004 and 2018. The 363 cases notified in 2018 represent a decrease compared to 2017 (of 12%). When only confirmed cases are compared, the 349 cases in 2018 represent a decrease on the number in 2017 (of 8%). Overall, notifications have increased 40% from a low of 260 cases notified in 2014, but remain below levels notified in 2007-2008[218].

Table 10.6. Salmonellosis rates in Republic of Ireland (2004-2018)

| Cases / 100,000 population | | | | | |
|---|---|---|---|---|---|
| Year | 2004 | 2005 | 2006 | 2007 | 2008 |
| Notification rate | 415 | 345 | 422 | 456 | 449 |
| CIR | 10.0 | 8.0 | 10.2 | 11.0 | 10.9 |
| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
| Notification rate | 332 | 356 | 310 | 313 | 324 |
| CIR | 7.2 | 7.9 | 6.8 | 6.8 | 4.1 |
| Year | 2014 | 2015 | 2016 | 2017 | 2018 |
| Notification rate | 260 | 269 | 302 | 414 | 363 |
| CIR | 5.9 | 6.0 | 6.2 | 8.9 | 7.3 |

Source: HPSC, 2019. Salmonellosis Annual Report (2019)[219]

---

[218] Source: HPSC, 2019. Salmonellosis Annual Report (2019)
[219] The CIR (Crude Incidence Rate) refers to the number of salmonellosis infections per 100,000 of the population. The different rates in Figure 11.6 refer to notification rates (blue bar) and confirmed rates (orange line).

### 10.4.2.1 Outbreaks and clusters

During 2018, two general outbreaks and three family outbreaks of salmonellosis were notified in RoI. The largest was an international outbreak of Salmonella monophasic Typhimurium of a pilgrimage group returning to the RoI from Medjugorje, Bosnia-Herzegovina in September 2018.

### 10.4.3 Listeriosis

Listeriosis is an infection caused by the bacterium Listeria monocytogenes. Anyone can become ill from eating food contaminated with Listeria monocytogenes, but the disease affects primarily pregnant women (and their unborn children), new-borns and adults with weakened immune systems[220]. In a healthy adult, the infection is usually without symptoms or causes a mild flu-like illness. In immunocompromised and older adults, the infection can spread via the bloodstream to the central nervous system causing meningitis and/or septicaemia with symptoms such as headache, stiff neck, confusion, and loss of balance or convulsions. Infected pregnant women may have no symptoms or experience only a mild flu-like illness. However, infection during pregnancy can lead to premature labour, meningitis in the new-born or miscarriage.

Listeria is widespread in the environment and can be found in soil and water. Vegetables can become contaminated from the soil or from manure used as fertilizer. Animals can carry the bacterium asymptomatically, and meat or dairy products from these animals can be contaminated. Foods may also be contaminated after processing, e.g. cheese. Unlike most bacteria, Listeria tends to grow at refrigerated temperatures in foods that have been contaminated. The foods most often associated with infection are ready-to-eat refrigerated and processed foods such as pre-prepared cooked and chilled meals, soft cheeses, cold cuts of meat, pâtés and smoked fish. Notable recent outbreaks elsewhere have been attributed to frozen corn[221] (several EU Member States), rock melons[222] (Australia), and sandwiches[223] (UK).

As can be seen in Table 10.7 below, the rate of Listeriosis in NI has been lower than the EU, UK and RoI rates for the past number of years. In 2017, the crude incidence rate in NI (0.1) was the lowest it's been in a number of years and significantly lower than the EU, UK and RoI rates.

Table 11.8 shows the trends in Listeriosis rates in the RoI. In 2018, the number of reported listeriosis cases was the highest since the disease became notifiable in 2004. All reported cases were in the recognised groups at risk for listeriosis, being elderly, having an underlying illness, or being pregnant or neonatal. No outbreaks in listeriosis were reported by HPSC who note that this suggests a rise in the number of sporadic infections which is particularly noticeable among the elderly.

---

[220] Source: HPSC, 2019. Listeriosis Annual Report (2018).
[221]http://ndsc.newsweaver.ie/epiinsight/in7kpowu0hi10gkzp9yxn5?a=6&p=53312582&t=17517854
[222]www.cidrap.umn.edu/news-perspective/2018/04/news-scan-apr-09-2018%C2%A0Accessed%20on%2016/04/2018
[223] GOV.UK, 2019. Listeria cases being investigated.

Table 10.7: Reported cases of human invasive listeriosis and notification rates per 100,000 population in the Republic of Ireland, Northern Ireland, the United Kingdom and the European Union (2014–2018)

|  | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Ireland | 0.33 | 0.41 | 0.29 | 0.29 | 0.43 |
| NI | 0.22 | 0.32 | 0.21 | 0.10 | - |
| UK | 0.31 | 0.29 | 0.31 | 0.24 | 0.25 |
| EU | 0.46 | 0.43 | 0.47 | 0.47 | 0.47 |

Data Source: EU One Health Zoonoses report (2018); HPSC Ireland data (2019); PHA NI data (2018)

Table 10.8: Listeriosis rates in Republic of Ireland (2004-2018)

| Cases / 100,000 population | | | | | |
|---|---|---|---|---|---|
| Year | 2004 | 2005 | 2006 | 2007 | 2008 |
| Adult/Juvenile | 6 | 10 | 3 | 12 | 9 |
| Neonatal | - | - | 1 | 3 | 2 |
| Pregnancy related | 3 | - | 1 | 6 | 2 |
| Not specified | 2 | 2 | 1 | - | - |
| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
| Adult/Juvenile | 9 | 6 | 3 | 7 | 5 |
| Neonatal | - | 1 | 2 | 2 | 3 |
| Pregnancy related | 1 | 4 | 2 | 1 | - |
| Not specified | - | - | - | - | - |
| Year | 2014 | 2015 | 2016 | 2017 | 2018 |
| Adult/Juvenile | 8 | 14 | 10 | 10 | 17 |
| Neonatal | 3 | 2 | 2 | 2 | 1 |
| Pregnancy related | 4 | 3 | 1 | 2 | 5 |
| Not specified | - | - | - | - | - |

### 10.4.4 Shiga toxin-producing E. coli (STEC)

There are many types of E coli, most of which are harmless and are an important part of a healthy human intestinal tract. However, some types can cause serious illness[225]. The most common transmission routes reported for Shiga toxin-producing E. coli (STEC) / Verocytotoxin-producing E. coli (VTEC) infection in Ireland have been person-to-person spread, especially in childcare facilities and among families with young children, as well as waterborne transmission associated with exposure to water from untreated or poorly treated private water sources[226]. Other important transmission routes identified internationally include food (often minced beef products or fresh produce such as lettuce and spinach) and contact with infected animals or contaminated environments. Symptoms of infection include stomach cramps, diarrhoea, fever and vomiting. Table 10.9 shows the rates of STEC / VTEC infections and notification rates per 100,000 of the population in the RoI, NI, the EU and the UK.

Table 10.9: Reported cases of STEC infections and notification rates per 100,000 population in the Republic of Ireland, Northern Ireland, the United Kingdom and the European Union (2014–2018)

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Ireland | 12.42 | 12.92 | 15.59 | 16.62 | 20.0 |
| NI | 2.9 | 1.8 | 1.8 | 3.0 | - |
| UK | 2.06 | 2.05 | 2.09 | 1.51 | 2.78 |
| EU | 1.75 | 1.65 | 1.79 | 1.64 | 2.28 |

Data Source: <u>EU One Health Zoonoses report (2018)</u>; <u>HPSC Ireland data (2019)</u>; <u>PHA NI data (2018)</u>.

As can be seen in Figure 11.9, the rates of STEC / VTEC infection have increased between 2014 and 2018 in RoI and they are consistently and significantly higher than the EU, NI and UK rates. For many years, RoI has had the highest STEC / VTEC notification rate in Europe, with the exception of 2011 when Germany reported the highest rate due to a large VTEC O104 outbreak linked to fenugreek seeds[227]. In 2017, the rate per 100,000 in Ireland was 16.62, in comparison to 1.64 in the EU, 2.78 in the UK and 3.0 in NI.

---

[224] HPSC, 2019. <u>Listeriosis Annual Report (2018).</u>
[225] Auckland Regional Public Health Service, 2018. <u>VTEC or STEC infection is a type of food poisoning that can cause diarrhoea and stomach cramps.</u>
[226] Garvey, P. et al. (2010). Epidemiology of verotoxigenic E. coli in Ireland, 2007. Epi-Insight: 11(9).
[227] HSPC, 2011. <u>VTEC O104:H4 outbreak in Germany and cluster in France: Update 29/6/11.</u>

Table 10.10 shows the rates of STEC/VTEC infection in Ireland from 2004 to 2017, by strain. As can be seen, overall rates have increased since 2004. In recent years the most common serogroup reported among culture positive notifications was E. coli O26.

Table 10.10: Rates of STEC / VTEC infection in the Republic of Ireland by strain (2004-2017)

| Cases / 100,000 population | | | | | |
|---|---|---|---|---|---|
| Year | 2004 | 2005 | 2006 | 2007 | 2008 |
| O111 | | | | | |
| O103 | | | | | |
| O145 | | | | | |
| O26 | | | | | |
| O157 | | | | | |
| Other | | | | | |
| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
| O111 | | | | | |
| O103 | | | | | |
| O145 | | | | | |
| O26 | | | | | |
| O157 | | | | | |
| Other | | | | | |
| Year | 2014 | 2015 | 2016 | 2017 | 2018 |
| O111 | | | | | |
| O103 | | | | | |
| O145 | | | | | |
| O26 | | | | | |
| O157 | | | | | |
| Other | | | | | |
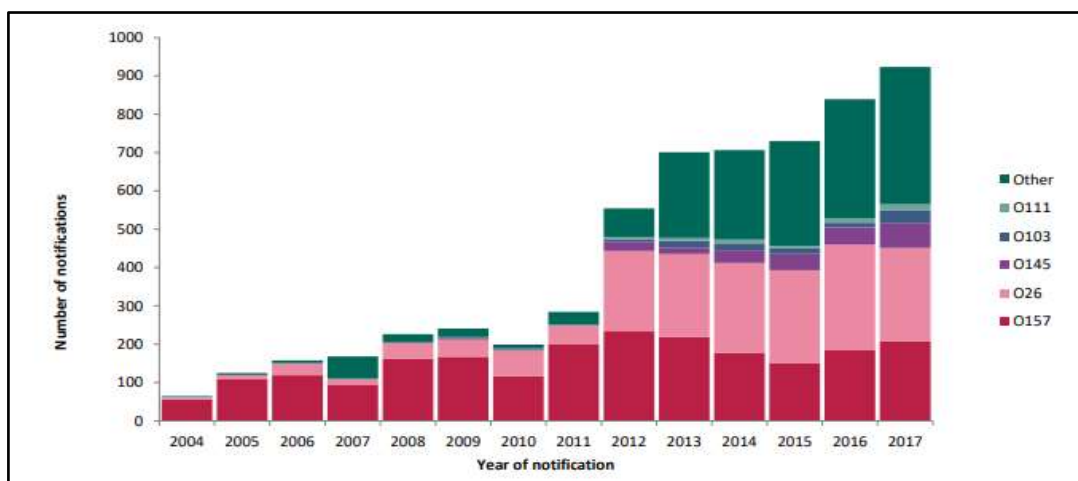
Source: VTEC infection in Ireland 2017, HSE Health Protection Surveillance Centre. VTEC Infection in Ireland, 2017; Dublin: HSE HPSC; 2019

## 10.5 Outbreaks

Outbreaks for 2017 in Ireland are outlined in tabular form in Table 10.11 below. Thirteen general outbreaks in 2017 resulted in 78 persons becoming ill, with six being hospitalised. Of these, six occurred in childcare facilities (CCFs); where the route of transmission could be identified, person-to-person spread was identified in two small CCF outbreaks. The largest CCF outbreak resulted in 44 confirmed cases of infection. Among the remaining seven general outbreaks, waterborne transmission was reported to have contributed to two small community outbreaks (with two and five people ill) and to a small outbreak at a childminder. Animal contact was suspected for an outbreak of two children in a school, person-to-person transmission for two further small general outbreaks (two persons at a residential facility and two in a private home outbreak), while the transmission route was reported as unknown for a small general outbreak in a private home.

Table 10.11: General VTEC outbreaks by suspected mode of transmission: Republic of Ireland, 2017

|  | No. of general outbreaks | No. ill |
|---|---|---|
| Person-to-person | 4 | 6 |
| Waterborne +/- person-to-person | 3 | 8 |
| Animal contact/Environment +/- person-to-person | 1 | 2 |
| Unknown/Not specified | 5 | 68 |
| **Total** | **13** | **84** |

Note: Data does not include reported family outbreaks

Source: VTEC infection in Ireland 2017, HSE Health Protection Surveillance Centre. VTEC Infection in Ireland, 2017; Dublin: HSE HPSC; 2019

### 10.6.1 Tuberculosis

Tuberculosis or "TB" is a preventable and curable disease. It is caused by a bacterium (germ) called Mycobacterium tuberculosis. TB usually affects the lungs, but it can also affect other parts of the body, including the glands, the bones and rarely the brain[228]. A specific type of TB called *Mycobacterium bovis (M. bovis)* can arise from drinking contaminated milk. This form of TB is now rare as pasteurisation of milk removes the risk. It is this type of TB we will present data on here. Table 10.12 shows the rate of reported cases of tuberculosis due to M. bovis and notification rates per 100,000 population in the EU, Ireland and UK (2014–2018). As outlined, the rates of this illness are now extremely low due to the pasteurisation of milk.

Table 10.12: Reported cases of tuberculosis due to *M. bovis* and notification rates per 100,000 population in the Republic of Ireland, the United Kingdom and the European Union (2014–2018)

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|
| Ireland | 0.06 | 0.11 | 0.06 | 0.08 | 0.14 |
| UK | 0.06 | 0.06 | 0.06 | 0.06 | 0.04 |
| EU | 0.04 | 0.04 | 0.04 | 0.05 | 0.04 |

Data Source: EU One Health Zoonoses report (2018); HPSC Ireland data (2019);

Davidson et al. (2017) carried out a study that looked at M. bovis rates for humans in England, Wales and NI between 2002 and 2014[229]. The researchers stated that they "identified 357 cases and observed increased annual case numbers (from 17 to 35) and rates. Most patients were >65 years of age and born in the UK. The median age of these patients decreased over time. For 74% of patients, exposure to risk factors accounting for *M. bovis* acquisition, most frequently consumption of unpasteurized milk, was known. Despite the small increase in case numbers and reduction in patient age, *M. bovis* infection of humans in England, Wales, and NI remains rare."

### 10.6.2 Brucellosis

Brucellosis is a highly infectious disease caused by the bacteria of the genus Brucella. Animals that are affected by Brucella include sheep, goats, cattle, camel, deer, pigs, and dogs. Humans become infected by coming in contact with animals or animal products that are contaminated with these bacteria. The

---

[228] HSPC, 2019. Tuberculosis (TB).
[229] Davidson et al, 2017. Epidemiology of Mycobacterium bovis Disease in Humans in England, Wales, and Northern Ireland, 2002–2014.

most common way to be infected is by eating or drinking contaminated milk or milk products. Contamination of skin wounds is a way in which spread can occur in farmers, in those working in abattoirs or meat packing plants and occasionally in vets[230]. As can be seen in Table 10.13, rates of brucellosis are very low in Ireland, the EU and the UK, with some years recording no cases.

Table 10.13: Reported cases of brucellosis and notification rates per 100,000 population in the Republic of Ireland, the United Kingdom and the European Union (2014–2018)

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Ireland | 0.07 | 0.00 | 0.04 | 0.04 | 0.00 |
| UK | 0.02 | 0.02 | - | - | - |
| EU | 0.09 | 0.09 | 0.11 | 0.09 | 0.08 |

Data Source: EU One Health Zoonoses report (2018); HPSC Ireland data (2019);

Table 10.14 shows the number of notifications and incidence rates in the RoI between 2014 and 2018. As can be seen, this is a very rare infection.

Table 10.14: Table showing number of brucellosis notifications and crude incidence rates in the Republic of Ireland (2014-2018)

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| No. of notifications | 3 | 0 | 2 | 2 | 0 |
| Crude incidence rate – per 100,000 | 0.06 | 0 | 0.04 | 0.04 | 0 |

Data Source: HSPC, 2019. Brucellosis Report

### 10.6.3 Cryptosporidiosis

Cryptosporidiosis is a diarrhoeal disease caused by the parasite Cryptosporidium. It has a worldwide distribution and can be found in soil, food, water, or on surfaces that have been contaminated with human or animal faeces. It is a common cause of waterborne outbreaks of gastroenteritis (both drinking and recreational waters)[231].

As Table 10.15 shows, for every year between 2013 and 2017, the rates of cryptosporidiosis have been higher in RoI and NI than the EU rate or the UK rate. RoI has consistently reported the highest crude

---

[230] HSPC, 2018. Brucellosis.
[231] HSPC, 2018. Cryptosporidiosis in Ireland, 2018.

incidence rate (CIR) of any Member State in the EU since 2012. In addition, when we look at the NI data separated from UK data, NI rates are even higher. However, many countries do not have a recording mechanism for this disease.

Table 10.15: Reported cases of cryptosporidiosis and notification rates per 100,000 population in the Republic of Ireland, Northern Ireland, the United Kingdom and the European Union (2014–2018)

| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Ireland | 11.2 | 8.6 | 9.6 | 11.8 | 12.4 |
| NI | 8.8 | 7.8 | 11.0 | 15.1 | 13.5 |
| UK | 6.3 | 6.4 | 9.1 | 10.3 | 7.7 |
| EU | 2.3 | 2.4 | 3.3 | 3.8 | 3.2 |

Data Source: EU One Health, 2018. Zoonoses report; HPSC, 2019. Cryptosporidiosis in Ireland; HSC, 2018. Gastrointestinal infections.

Table 10.16 shows the rates for the RoI. In 2018, 629 cases of cryptosporidiosis were notified representing a CIR of 13.2 per 100,000 population. This is a 7% increase in the CIR from 2017. One hundred and ninety-six notified cases were hospitalised (31%). There were no reported deaths.

Table 10.16: Rates (number of notifications and crude incidence rate (CIR/100,000 population)) of cryptosporidiosis in the Republic of Ireland (2004-2018)

| Number of notirications & CIR/100,000 | | | | | |
|---|---|---|---|---|---|
| Year | 200 | 2005 | 2006 | 2007 | 2008 |
| Notifications | 425 | 568 | 369 | 608 | 415 |
| CIR | 10.0 | 13.4 | 8.7 | 14.3 | 9.8 |
| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
| Notifications | 445 | 294 | 428 | 556 | 514 |
| CIR | 9.7 | 6.4 | 9.3 | 12.1 | 11.2 |
| Year | 2014 | 2015 | 2016 | 2017 | 2018 |
| Notifications | 394 | 439 | 561 | 589 | 629 |
| CIR | 8.6 | 9.6 | 11.8 | 12.4 | 13.2 |

Data Source: HSPC, 2018. Cryptosporidiosis in Ireland Annual Report.

Consistent with previous years, in 2018 there was a higher incidence in springtime and in young children.  Outbreak and case-based surveillance data suggest that animal contact is an important risk factor for cryptosporidiosis in Ireland. Exposure to water from non-public supplies also presents a risk of cryptosporidiosis.

### 10.6.3.1 Outbreaks

Table 10.17 outlines the cryptosporidiosis outbreaks in Ireland in 2018. In total 19 outbreaks were reported in 2018 (4 general and 15 family outbreaks). The number of outbreaks notified since 2011 has increased. However, this is primarily due to increased recognition of small family outbreaks following the introduction of enhanced surveillance for cryptosporidiosis cases in 2010, and the number of general outbreaks notified has remained stable.

Table 10.17: Cryptosporidiosis outbreaks in the Republic of Ireland in 2018

| Outbreak location | Person-to-person | | Waterborne | | Animal/Environmental contact | | UNK/Not specified | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of outbreaks | No. ill | No. of outbreaks | No. ill | No. of outbreaks | No. ill | No. of outbreaks | No. ill | No. of outbreaks | No. ill |
| Childcare facility +/- private house | 2 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 18 |
| Hotel | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 |
| Private house | 2 | 4 | 2 | 4 | 4 | 4 | 7 | 16 | 15 | 28 |
| Travel related | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 22 | 1 | 22 |
| Total | 4 | 22 | 3 | 9 | 4 | 4 | 8 | 38 | 19 | 73 |

Data Source: HSPC, 2018. Cryptosporidiosis in Ireland Annual Report.

The most common transmission route reported in these outbreaks was by animal contact (four outbreaks) with two waterborne outbreaks and two outbreaks due to person-to-person spread also reported (the transmission route was unknown for the remaining seven family outbreaks).

### 10.6.4 Leptospirosis

Leptospirosis is a rare disease in both Ireland and the UK. Leptospirosis is spread in the urine of infected animals – most commonly rats, mice, cows, pigs and dogs. People can become infected if soil or freshwater (such as from a river, canal or lake) containing infected urine gets in their mouth, eyes or a cut usually during activities like kayaking, outdoor swimming or fishing. In addition, people can become infected if they touch an infected animal's blood or flesh, usually from working with animals or animal parts. It's very rare to get leptospirosis from pets, other people or bites[232].

The EU have not updated their leptospirosis figures since 2015[233]. Data from 2011 to 2015 shows a UK and EU rate (per 100,000) of 0.1 and 0.2, respectively, whereas the rate for the RoI ranges from 0.5 (in 2014) to 0.3 (in 2015). While the RoI rate is slightly, very small numbers of cases are being reported.

Table 10.18 shows the annual rates of leptospirosis in Ireland by exposure group from 2009 to 2018. During 2018, 19 cases of leptospirosis were notified. This remains stable compared to 20 cases notified in 2017. Of the 16 cases with details of potential exposures reported, nine (53%) were believed to have acquired their illness occupationally. Of these, five were farmers or farm owners. Four occupationally exposed cases reported animal contact and two reported exposure to contaminated environments. Five cases (31%) were reported being associated with recreational activities, including river water exposure. The remaining two cases reported animal contact through residential and other modes of exposure. Males accounted for 85% of cases[234].

Table 10.18: Annual number of leptospirosis notifications in the Republic of Ireland by exposure group

|  | Occupationally | Recreationally | Other | Unknown |
|---|---|---|---|---|
| 2009 | 6 | 10 | 3 | 5 |
| 2010 | 7 | 5 | 1 | 4 |
| 2011 | 7 | 4 | 2 | 3 |
| 2012 | 8 | 4 | 1 | 2 |
| 2013 | 6 | 5 | 2 | 1 |
| 2014 | 13 | 5 | 3 | 2 |

232 NHS, 2020. Leptospirosis (Weil's disease).
233 European Centre for Disease Prevention and Control, 2015. Leptospirosis - Annual Epidemiological Report for 2015.
234 HSPC, 2018. Leptospirosis.

| | | | | |
|---|---|---|---|---|
| **2015** | 5 | 1 | 3 | 8 |
| **2016** | 11 | 6 | 6 | 3 |
| **2017** | 8 | 6 | 3 | 3 |
| **2018** | 9 | 5 | 2 | 3 |

Data Source:  HPSC, 2018. Leptospirosis in Ireland Annual Report

### 10.6.5 Toxoplasmosis

Toxoplasmosis is a disease caused by a common parasite called Toxoplasma gondii, which can infect all mammals and birds and is found throughout the world. Up to one billion of the world's human population has become infected with Toxoplasma. Most healthy people who become infected do not experience any symptoms, however about 10% develop a mild flu-like illness. People living with HIV/AIDS or taking immunosuppressive therapy may be at greater risk of developing disease[235].

Table 10.19: Annual of toxoplasmosis notifications in the Republic of Ireland (2009 - 2018)

| | No. of toxoplasmosis notifications |
|---|---|
| **2009** | 37 |
| **2010** | 36 |
| **2011** | 32 |
| **2012** | 36 |
| **2013** | 32 |
| **2014** | 20 |
| **2015** | 25 |
| **2016** | 24 |
| **2017** | 20 |
| **2018** | 32 |

Data Source: HPSC, 2018. Toxoplasmosis in Ireland Annual Report.

Many EU countries do not report data on toxoplasmosis[236]. Data for the RoI is presented on Table 10.19. During 2018, 32 cases of toxoplasmosis were notified, an increase compared to a mean number of 24 cases notified between 2013 and 2017. Among the 27 cases where patient type was reported, 56% were

---

[235] HSPC, 2018. Toxoplasmosis.
[236] European Centre for Disease Prevention and Control, 2017. Congenital toxoplasmosis - Annual Epidemiological Report for 2017.

GP patients and 26% attended hospital outpatient services. Cases ranged in age from nine to 86 years (median: 34.5 years). No congenital cases were reported in 2018. As in previous years, more cases were reported among females than males (M:F ratio 0.4:1.0)[237].

## 10.8 Foodborne Illness Death Rates by World Health Organization (WHO) Regions

While WHO's report (2015)[238] notes that foodborne illnesses are a worldwide concern, Africa and South-East Asia regions have the highest incidence and highest death rates.  For statistical purposes, the WHO splits their data into a number of regions:

- Eastern Mediterranean Region[239]
- European Region[240]
- Western Pacific Region[241]
- Region of the Americas[242]
- South-East Asia Region[243]
- African Region[244]

Table 10.20 shows the death rate from foodborne disease in the WHO regions.

Table 10.20: Death rate from foodborne disease per World Health Organization region

| AREA | Death rate (per 100,000 of the population) |
|---|---|
| Eastern Mediterranean Region | 5.57 |
| European Region | 0.55 |
| Western Pacific Region | 2.65 |
| Region of the Americas | 0.90 |
| South-East Asia Region | 8.99 |
| African Region | 13.4 |

Source: WHO, 2015. WHO estimates of the global burden of foodborne diseases.

As can be seen, Africa and South East Asia experience the highest rates of death from foodborne diseases while Europe has the lowest rates.

---

[237] HPSC, 2018. Toxoplasmosis in Ireland Annual Report
[238] World Health Organisation (WHO), 2015. WHO Estimates of Global Burden of Foodborne Diseases.
[239] World Health Organisation (WHO), 2015. Foodborne Diseases in the WHO Eastern Mediterranean Region.
[240] World Health Organisation (WHO), 2015. Foodborne Diseases in the WHO European Region.
[241] World Health Organisation (WHO), 2015. Foodborne Diseases in the WHO Western Pacific Region.
[242] World Health Organisation (WHO), 2015. Foodborne Diseases in the WHO Region of the Americas.
[243] World Health Organisation (WHO), 2015. Foodborne Diseases in the WHO South-East Asia Region.
[244] World Health Organisation (WHO), 2015. Foodborne Diseases in the WHO Africa Region. I

## *safe*food

7 Eastgate Avenue, Eastgate, Little Island, Co.Cork, T45 RX01
7 Ascall an Gheata Thoir, An tOiléan Beag, Co. Chorcaí, TT45 RX01
7 Aistyett Avenue, Aistyett, Wee Isle, Co. Cork, T45 RX01

**Tel** +353 (0)21 230 4100
**Fax** +353 (0)21 230 4111

**Email:** info@safefood.eu

@safefood_eu

@safefood_eu

**Helpline**
**ROI** 1850 404 567   **NI** 0800 085 1683

*safe*food