

The relationship between climate change and agriculture is a contentious, complex and important one. In this series of twelve blogs, UCD Adjunct Professor Frank Convery will explore the context, challenges and potential solutions for dairy, beef and sheep farming in Ireland. Each blog presents key evidence to underpin informed debate and the series seeks to help plot a sustainable future for the sector.

Responses are invited via earth.institute@ucd.ie and the UCD Earth Institute will host a workshop in association with the UCD School of Agriculture and Food Science and the National Economic and Social Council at the end of the series in December 2022 to discuss the evidence and its implications.

Professor Tasman Crowe, Director, UCD Earth Institute



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4. Climate Performance by Irish Ruminant Farming (Dairy, Beef, Sheep): United Kingdom (UK): Climate Policy Developments and Consumer Choices in a Key Market for Irish Food

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"Ireland will become a **world leader** in Sustainable Food Systems over the next decade. This will deliver significant benefits...and will also provide the basis for the future competitive advantage of the sector".

Food Vision 2030[1]

"The English have only one ambition in relation to Ireland, which is to hear no more about it".

Edmund Burke

Some Key Points

If Ireland is to 'become a world leader in Sustainable Food Systems (SFS)' its food products may need to at least match the carbon footprint of food produced within the UK. The main competition in the UK market would come mainly from local producers and, in time (as the full provisions of the trade agreements with Australia and New Zealand take effect) with these suppliers. In 2021, exports from Ireland (Republic of) to Northern Ireland (NI) amounted to over €560 million. This argues for convergence of high carbon efficiency by ruminant farmers on the island of Ireland. The decision in the Northern Ireland's Climate Act to separate climate ambition for carbon dioxide and methane could be problematic if the markets they export to do not recognize this distinction[2]. The metrics that apply (see [Blog 2](#)) will be decided in the markets into to which it sells. As England and Wales implement their Environmental Land Management (ELM) programme, they could become global leaders in the carbon efficiency of its farming and impose UK-wide border adjustments on imports not meeting its standards. Ireland has a lot to learn from Scotland about achieving afforestation at scale and reducing carbon leakage.

Introduction

Understanding climate policy for agriculture and land use in the UK is complicated. The UK government has responsibility for overall strategy and budgetary, tax and trade policy and assumes responsibility for the design and delivery of climate policy for England. In the case of Northern Ireland, Scotland, and Wales, excluding budget, tax and trade provisions, climate policy for the sector it is a devolved function. Total UK greenhouse gas emissions from agriculture in 2019 were 46.3 million tons of CO₂e.[3] However, action at the devolved level is to be informed by the recommendations of the Climate Change Committee, which has a UK-wide brief to advise on climate budgets, and their distribution to each of these jurisdictions.

O'Rourke observed that, prior to joining the EU, the UK had a historic commitment to cheap food.[4] It met this commitment with very low tariffs on food imports, especially those coming from Australia Canada and New Zealand. To maintain domestic food production, UK farmers obtained guaranteed prices by means of a subsidy known as a deficiency payment, equal to the difference between the average market price and the guaranteed price. These deficiency payments cost money, but since 'Britain's agricultural sector was relatively small, the policy was affordable'. After joining the EU in 1973, it adopted the EU model, which today involves tariff protection, especially for beef, and payments to farmers via the Common Agricultural Policy (CAP), delivered in the form of direct income support (Pillar 1) fully funded by the EU and co-funded measures supporting regional development (Pillar 2)

Before it left the EU, such CAP payments amounted to €4.2 billion (2019). The distribution of this envelope to the four nations comprising the UK in 2019 was as follows:

Table 1 Common Agricultural Policy (CAP) transfers, by Jurisdiction, UK, 2019, Million Euros

Jurisdiction	Pillar 1 (mainly basic income)	Pillar 2 (mainly co-funded measures)	Total	% Total
England	2100	572	2672	63.2
Wales	265	132	397	9.4
Scotland	539	245	784	18.5
N. Ireland	324	52	376	8.9
Total UK	3228	1001	4229	100

Source: [Agriculture in the UK 2019 \(publishing.service.gov.uk\)](#), p. 108

After Brexit, the UK government committed to maintain the level of funding to the sector, but the size of the envelope and how it is distributed can be expected to evolve over time.

In what follows, I summarize some relevant evidence as regards UK trade, and then turn to a few specifics as regards evolving climate policy for agriculture and land use in England, Northern Ireland and Scotland and conclude with an assessment of its implications for Ireland.

Evidence

Trade

Ireland's exports of dairy, beef and sheep in 2021 to the UK totalled just over €2 billion, and comprise 26.3% of its total, second only to its sales to EU 27.

Table 2. Exports to UK Dairy, Beef, Sheep, By Value (000 €) 2021 IRELAND

Destination	ROW	DAIRY		BEEF		SHEEP		TOTAL	
		Value (000 €)	%	Value (000 €)	%	Value (000 €)	%	Value (000s €)	%
Great Britain	(1)	602,619	11.9	857,154	35.6	40,366	10.5	1,500,139	19.1
Northern Ireland	(2)	357,065	7.1	196,137	8.2	7,290	1.9	560,492	7.1
TOTAL UK	(3)	959,784	19.0	1,053,291	43.8	47,656	12.4	2,060,631	26.2
GRAND TOTAL	(4)	5,059,581	100	2,406,477	100	385,250	100	7,851,308	100

Source: response by Carol Forrester, International Trade in Goods Section, Central Statistics Office Ardee Road, Dublin 6. to request sent to: Trade@cso.ie (abstracted from).

With its departure from the EU, the UK is free to decide on its own trade policy, which could include creating border tax adjustments to food imports, based on their carbon efficiency performance. The UK's Climate Change Committee (CCC) addressed this issue as follows: [5]

"UK trade policy must protect risks of carbon leakage from trade in agricultural products and avoid undermining the required changes in UK land management. There is an opportunity now to implement a new policy framework for land use in the UK that will give long-term clarity and priority to climate change. The legislative opportunities for real change are available and should progress immediately. Early action is essential to enable the transition to lower carbon uses of land given the time required for some measures to deliver emissions reduction and removals. Interim policies should be implemented to avoid a hiatus in action before the new framework is fully in place (e.g., the national roll-out of the Environmental Land Management Scheme (ELMS) in 2024)".

Developments in Climate Policy in Northern Ireland, England, Scotland

England

In December 2021, relevant schemes were listed as follows: sustainable farming initiative; local nature recovery; landscape recovery; farming and protected landscapes; England woodland creation offer; tree health pilot; countryside stewardship grants; animal health and welfare pathway.[6]

In October 2021, the government released its Net Zero Strategy for England[7]: Key elements include:

- 75% of farmers in England will be engaged in low carbon practices by 2030, rising to 85% by 2035, mainly via ELMS programmes.
- Increase investment in industry-led research and development into solutions to help deliver net zero including through the Farming Innovation Programme.
- Treble woodland creation rates by the end of this Parliament, reflecting England's contribution to meeting the UK's overall target of increasing planting rates to 30,000 hectares per year by the end of this Parliament and maintain new planting at least at this level from 2025 onwards.

- Boost the existing £640 million Nature for Climate Fund to more than £750 million by 2025 on peat restoration, woodland creation and management.
- Restore at least 35,000 hectares of peatlands in England by 2025, increasing to 280,000 hectares in England by 2050.

In its assessment of climate policy for agriculture and land use, the Climate Change Committee noted that:

“Payments are expected to be based on the delivery of outcomes, and where that may be difficult to quantify, the uptake of actions, which will serve as a proxy for a particular outcome (e.g., planting trees along water courses to improve water quality). The findings from a three-year pilot using a ‘payment by results’ approach in North Yorkshire and East Anglia to deliver certain biodiversity objectives, will along with other evidence sources be used inform the development of the ELMS”^[8]

Scotland

It updated its Climate Plan in 2020. Key elements relating to agriculture and land use include:

Forestry and Peatland^[9]

Peatland cover about 20% of Scotland’s land area. It is estimated that around 80% of Scotland’s peatlands are degraded, and peatland restoration is therefore seen as a major opportunity to reduce carbon leakage. Feasibility studies have been carried out since 2012 on over 200,000 hectares, and over 25,000 hectares have been put on the road to recovery. There is a target to achieve 20,000 hectares annually of restoration by 2032, but modelling shows that it would need to be far higher than this to meet Scotland’s climate target for that year. An updated and expanded carbon registry, the UK Land Carbon Registry, was launched in November 2020 and now also includes peatland restoration credits generated under Peatland Code.

As regards afforestation, the report notes that: “We have created over 22,000 hectares of new woodland in the last two years, and we will continue to invest to increase overall forest cover in Scotland”. The 2020–2021 Programme for Government announced an increased woodland creation target of 18,000 hectares per year by 2024/25, assisted by expansion of the national forests, and increased support for planting and nurseries. “Over 250 woodland projects have been validated under the Woodland Carbon Code^[10] to date. These are predicted to sequester over 5 million tCO₂ in the future, and provide a range of other benefits for the environment and local communities.” In addition to afforestation, there is a commitment to “boost our work on forestry and farming and develop models to increase woodland creation on both tenanted and owner-occupied farms, increasing the scale and scope of agro-forestry.”

Regional Land Use Partnerships and Framework are to be tested that “strategically identifies where resources can have the most positive climate impact”.

The aspiration is that: “By 2045, Scotland will be internationally recognised for its woodland and peatland restoration achievements and potential, attracting investors from international and domestic business organisations who want to play their part in delivering a more sustainable future”

Farming^[11]

A series of actions that would reduce emissions and command government support, and networks that exist to support these, are identified. One network of 12 farms, of whom 4 are dairy, 3 are beef and sheep, and one is sheep – supported by SRUC – are learning by doing^[12]. They use Agrecalc[®] to assess baseline and performance, but other options – Farm Carbon Calculator, Cool Farm Tool, Sloagro (JRC) Carbon Calculator – are available; those tools that are PAS 2050 accredited are recommended. Learning will also be accelerated by the commitment to develop new schemes and approaches to support low carbon, sustainable farming, including through the Programme Board for the Beef Suckler Climate Group, and also a new and expanded peer to peer knowledge transfer initiative based on the success of Young Climate Change Champions.

“By 2032, the agriculture sector in Scotland will have adopted and be competently using all available low emission technologies throughout the whole sector, such as maximising efficiencies, minimising inputs and maximising outputs, precision farming, optimal slurry and manure usage and storage. There will also be increased innovation in areas such as feedstuffs and use of fertilisers, making a significant contribution to meeting our climate change targets as well as wider environmental and biodiversity impacts for the whole of Scotland.”

Northern Ireland

There are 3 important documents that provide insights as to climate policy for agriculture forestry and land use.

1. Northern Ireland Executive, 2021. *Green Growth – Today we act. Tomorrow we thrive.* [13]
2. Department of Agriculture Environment and Rural Affairs, 2021. *Future Agricultural Policy Framework Portfolio for Northern Ireland*, August [14]

It reports (p. 23) that Northern Ireland's total emissions were 21.4 Mt CO₂e in 2019, accounting for 5% of UK greenhouse gas emissions compared to approximately 3% of the UK population. Agriculture (26%), transport (20%) and residential buildings (14%) were the largest sectors. It was advised by the UK Climate Change Committee.

It notes (p. 39) that: "We do not set sectoral targets in this strategy. This will be informed by a Northern Ireland specific Climate Change Act, which will provide additional detail around specific targets we will need to achieve. It will be the duty of each department with primary responsibility for the relevant sector to deliver on existing policies and, where none exists, to bring forward policies to deliver upon the milestone targets, aligned to each carbon budget. Coordination across government will be crucial given the interconnected nature of certain sectors and we will play an important role in delivering this." It flags the ambition of planting 18 million trees and flags the future agricultural policy framework:

It recognizes that, while better resource efficiency will also help deliver better environmental outcomes, the market fails to sufficiently reward provision of climate and environmental benefits, and it proposes that 10 principles should guide action, including: payments sufficiently attractive to encourage large scale uptake should reward provision of climate and other public goods; the right information at the right time is crucial; schemes should be output based, scalable, with an appropriate time horizon and partnerships should be fostered; monitoring reporting and verification (MRV) is essential, and 'market-led initiatives to encourage and improve environmental performance on farms, and to capitalise on any market advantage that better environmental performance creates, must be rigorously explored and pursued, particularly by the food processing sector'

1. The Climate Act, 2022. [15]
2. The Republic of Ireland (6.9 million hectares) and Scotland (8.0 million hectares) are roughly the same size, but there is a huge disparity in their propensity to plant trees, with Scotland's recent annual planting rate of 12,000 hectares annually [18] contrasting with an Irish annual planting rate over the past 9 years which peaked at 6,700 hectares in 2012 but fell to ~2,400 hectares by 2020 ()
3. They both have huge leakage of carbon from land use, and Scotland is showing leadership and ambition in this space.
4. They both have many suckler beef farmers, many of whom are struggling commercially. Scotland is implementing its Beef Suckler Climate Report and Ireland is also addressing this area.

Emissions Targets (Sub section 1): "The Northern Ireland departments must ensure that: the net Northern Ireland emissions account for carbon dioxide for the year 2050 is at least 100% lower than the baseline for carbon dioxide; duty in subsection (1) does not require the net Northern Ireland emissions account for methane for the year 2050 to be more than 46% lower than the baseline for methane. The Northern Ireland departments must ensure that the net Northern Ireland emissions account for the year 2030 is at least 48% lower than the baseline

Sectoral plans for agriculture: Section 19: Sectoral plans for agriculture must contain proposals for carrying out fully funded carbon audits of farms to assess where performance improvements and **savings can be made**; carbon sequestration measures already being conducted by the sector should be calculated

Section 19: In setting carbon budgets, **inter alia**, take account of: the special economic and social role of agriculture, including the distinct characteristics of biogenic methane; the likely impact of the budget on those living in remote rural communities and island communities.

Assessment

Trade

If Ireland is to 'become a world leader in Sustainable Food Systems (SFS) over the next decade' its food products is likely to have to at least match the carbon intensity of food produced within the UK.

If the UK becomes a global leader in the production of low carbon intense ruminant (dairy, beef, sheep) food products, and its government accepts its Climate Change Committee's (CCC's) advice on this front, then Irish and other exporters into the UK can expect to be penalized by some border tax adjustment if they do not at least match the UK's standards. This provision will apply in all four jurisdictions.

In the (unlikely?) event that the UK at some point were to revert to its 'cheap food' policy, it might prioritize price above all else, and not apply any carbon-performance related carbon adjustments.

Carbon Leakage

The main competition in the UK market would come mainly from indigenous producers and, in time (as the full provisions of the trade agreements with Australia and New Zealand take effect) with these suppliers. If supplies from Ireland to this market were reduced, alternative supplies will come mainly from these sources. The first round of carbon leakage, if any, would be modest, and a shortfall in Irish supply would certainly not be provided by supplies produced with the average emission intensity globally.

Northern Ireland

In 2021, exports from Ireland (Republic of) to NI amounted to over €560 million, and presumably there are large flows from NI to the Republic. As is clear from , 5 (US) and 8 (Companies), for commercial reasons, Irish food exporters will want to ensure that the carbon efficiency in their supplies chains is competitive. And there is symmetry here – if the UK becomes a global leader in carbon efficiency, then processors in NI who are selling into the UK market will need to ensure that suppliers from the Republic meet these same standards. This argues for convergence of high carbon efficiency by all producers on the island of Ireland.

Climate Policy

England

Most of the initiatives undertaken to this point are not very climate specific, and there is no sign that carbon efficiency labelling for consumers is envisaged. What happens in the future will depend on: values – will the UK sustain the ambition to become a global leader in the quality and reach of its climate stewardship as regards food production and consumption? And secondly, if so, will it design and implement policies that deliver this at scale?[16] There seems to be a convergence of ambition between National Farmers Union (NFU) (England and Wales) and the government in that the NFU has set the ambitious goal of reaching net zero greenhouse gas (GHG) emissions across the whole of agriculture in England and Wales by 2040.[17]

Scotland

Its style and substance both convey a seriousness of purpose, and there are some areas where there seems to be a lot that Ireland could learn. A few examples:

Northern Ireland

Given the difficulties the Northern Ireland Executive have in agreeing to operate, it is impressive that they managed to address climate change, produce principles that should inform policy, and enact the Climate Act. However, there is not yet a set of climate specific funding for actions and programmes in place comparable to those which exist in England and Wales, and Scotland. Its position poses a few challenges.

- If there is an asymmetry of effort that creates a gap between the climate performance of farming in NI relative to the Republic and/or the rest of the UK, this over time will pose challenges for NI suppliers to companies in both the Republic and the UK who decide that reducing their life-cycle carbon footprint is important for both their consumers and/or preferential access to investment and borrowing (see Blog 8)
- The decision in the Climate Act to separate climate ambition for carbon dioxide and methane (oddly, nitrous oxide is not mentioned) could be problematic if the markets they export to do not recognize this distinction. The metrics that apply (see) will be decided in the markets into to which they sell, not in either of the jurisdictions in Ireland.

There needs to be an all-island emissions reduction and carbon removal strategy that maximizes the prospects in all key markets.

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« Climate Policy For Ruminant Agriculture In Ireland blog series

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Biography

Frank Convery has degrees [B. Ag and M.Ag (Forestry)] from UCD. Encouraged by the late Seamus Sheehy, he went to the US and took a PhD in Forestry Economics (State University of New York). After a distinguished academic career in the US (Duke University) he returned to Ireland as research professor at ESRI before being appointed as Heritage Trust Professor of Environmental Studies at UCD where he led the successful application for the funding of the UCD Earth Institute. He chaired the boards of the Sustainable Energy Authority of Ireland (SEAI) (2002–2007), Comhar Sustainable Development Council (2006–2010) and served on the Climate Change Committee (2016–2020) chaired by John FitzGerald, and the AgriFood 2030 Committee chaired by Tom Arnold. The latter produced *Food Vision 2030*. From 2014 to 2018, he was chief economist with the Environmental Defense Fund, New York. His passion is finding ways to bring the weight of learning down to where things are done; his ambition for the sector is the same as Food Vision 2030's: "Ireland will become a **world leader** in Sustainable Food Systems (SFS) over the next decade. This will deliver significant benefits...and will also provide the basis for the future competitive advantage of the sector".

Footnotes and references

[1] gov.ie – *Food Vision 2030 – A World Leader in Sustainable Food Systems* (www.gov.ie) p.9

[2] New Zealand has also adopted this approach. See Blog 7 for details

[3] In 2019, total income from farming (TIFF) in the UK was £5.3 billion; England accounted for the largest share – 75% of this total, Scotland 14%, Northern Ireland 5.5% and Wales 4.9%. [Agriculture in the UK 2019](https://publishing.service.gov.uk) (publishing.service.gov.uk) p. 26

[4] O'Rourke, Kevin, 2018. *A Short History of Brexit*, Pelican Books, p. 62

[5] *Land-use-Policies-for-a-Net-Zero-UK (2).pdf* p. 17

[6] Details at: <https://defrafarming.blog.gov.uk/2022/01/06/get-ready-for-our-3-new-environmental-land-management-schemes/>. Climate data specific to agriculture available at: [Agri-climate report 2021 – GOV.UK](https://www.gov.uk) (www.gov.uk)

[7] [net-zero-strategy-beis.pdf](https://publishing.service.gov.uk) (publishing.service.gov.uk) pp. 167–183

[8] *Land-use-Policies-for-a-Net-Zero-UK (2).pdf* p. 80 Table 4.3

[9] More detail in: [Chapter 6 Land Use, Land Use Change and Forestry – 3.6. Land Use, Land Use Change and Forestry – Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update – gov.scot \(www.gov.scot\)](#).

[10] The Woodland Carbon Code is a standard for generating verified carbon credits through planting new woodlands, enabling businesses to compensate for their residual emissions. The Code underpins trust in the woodland carbon market in order to attract additional investment into woodland creation by verifying that woodland carbon projects are responsibly and sustainably managed to national standards.

[11] More detail in Chapter 7 of: [Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update – gov.scot \(www.gov.scot\)](#) and at: www.farmingforabetterclimate.org

[12] [Climate Change Focus Farms – Farming for a Better Climate](#)

[13] [Green Growth_Brochure V8.pdf \(daera-ni.gov.uk\)](#).

[14] [21.22.086 Future Agriculture Framework final V2.PDF \(daera-ni.gov.uk\)](#), pp. 25, 26

[15] [Climate Change Act \(Northern Ireland\) 2022 \(legislation.gov.uk\)](#).

[16] This depends on which UK 'shows up'. Covid provides two contrasts. As regards finding and delivering vaccines quickly and at scale, it led the world by appointing a superb leader (Kate Bingham) who ensured that they reached out to the world to find the best prospects, and designed and delivered policies that maximized the prospects of success (See Blog 12 for details). Conversely, it spent £22 Billion on the development of a track and trace system that failed, because it seems to have been parochial and chauvinistic in its seeking out of talent and leadership and inept in the design and delivery of policies – see **Rory Cellan-Jones**, [Coronavirus: What went wrong with the UK's contact tracing app? – BBC News](#) June 20, 2020 and UK Parliament, [“Unimaginable” cost of Test & Trace failed to deliver central promise of averting another lockdown – Committees – UK Parliament](#), 10 March 2021.

[17] [Net Zero_12pp_v4.indd \(nfonline.com\)](#).

[18] [Chapter 6 Land Use, Land Use Change and Forestry – 3.6. Land Use, Land Use Change and Forestry – Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update – gov.scot \(www.gov.scot\)](#).