

# The Mainstreaming of Sustainability in Irish Agriculture



## From the Barricades to the Boardroom

Last autumn, I was asked by the *Irish Times* to reflect on the question “what happened to the environmental message on the national agenda?” Within the context of agriculture, the answer to this question is remarkably simple: “it has been mainstreamed”. Over the last 10 years, the topic of sustainability has moved from the barricades to the boardroom. Where previously ‘environmental protection’ was considered a constraint to agriculture and food production, the efficient and sustainable use of natural resources is now considered a key driver of growth. We see this new narrative in a wide range of initiatives that would have been considered utopian in the not so distant past: the farmers organisations have teamed up with the Environmental Protection Agency and Teagasc in the ‘Smart farming’ initiative, many of the food processors are rolling out ambitious sustainability programmes that include their suppliers, and Bord Bia’s Origin Green initiative uses the ‘green credentials’ as the unique selling point of Irish produce, internationally.

The mainstreaming of sustainability is also evident in the policy process: the previous strategy for the agricultural industry, known as Food Harvest 2020, was developed with sustainability as a driver of growth, but the environmental analysis was conducted retrospectively. This process has been reversed in the development of the new Food Wise 2025 strategy: this was actively informed by the environmental analysis, which was conducted concurrently. As a result, page 4 of the Food Wise 2025 document states: “A guiding principle that Food Wise 2025 will seek to embed at all levels of the agri-food industry is that environmental protection and economic competitiveness are equal and complementary: one will not be achieved at the expense of the other.” Key to achieving this ‘parity of esteem’ between environment and economics is sustainable intensification, which “leverages the strengths of the sector by improving productivity while using natural resources in a manner which protects them into the future.”

This has led to a public debate on whether this laudable objective can be turned into a reality. In this article, we try and answer this question by assessing the scientific evidence and knowledge on agriculture and the environment that we have gained over the last 10 years.

## Is the Glass of Milk Half Full or Half Empty?

The good news is that Irish agriculture has got smarter. As a country, not only are we now producing more food than ever before, we are also producing it more efficiently. These gains in efficiency are largely driven by knowledge

and data. The Economic Breeding Index allows farmers to select the most efficient animals for breeding, while decision support tools such as the Grass Wedge assist farmers in maximising the use of grass as a resource and minimising ‘waste’. The Teagasc – Bord Bia Carbon Navigator gives practical advice to farmers on how to reduce greenhouse gas emissions on their farms, and is now rolled out nationwide as part of Bord Bia’s quality assurance scheme. Last month autumn, Teagasc launched the Nutrient Management Planning Online tool, which visualises the nutrient requirements of individual fields, allowing for precision fertiliser applications.

This ‘knowledge intensification’ of Irish farming is now beginning to show results: inputs of phosphorus fertiliser have fallen by 40% since the introduction of the Nitrates Action Programme. Similarly, each plate of Irish food is now produced with 25% less nitrogen inputs and with 15% lower greenhouse gas emissions than the same plate of food in 1990.

These gains in farm efficiency have contributed to halting the decline of the water quality of our rivers: the Environmental Protection Agency has reported that phosphorus concentrations have stabilised in most rivers, while nitrogen concentrations have either stabilised or improved. Similarly, total greenhouse gas emissions from agriculture have been remarkably stable, considering the higher output levels. As a result, it is legitimate to conclude that, during the last decade, Irish farming is now producing more food without increased pressure on the environment.

However, the other half of the narrative, equally valid, is that this ‘flat-lining’ of environmental impact is likely to be insufficient to meet the increasingly stringent environmental targets that agriculture must adhere to. For example, the Nitrates Directive has now been superseded by the Water Framework Directive, which requires that the historic decline in water quality is not only halted, but reversed, so that all waterbodies are restored to at least ‘good status’ by the end of 2027. Similarly, while international policy negotiations at European and global level now recognise that it will prove very difficult to reduce greenhouse gas emissions from agriculture worldwide, the forthcoming targets, to be decided on over the next few months, will still require a significant reduction, rather than a flat-lining of emissions. The outlook for policies on biodiversity is likewise: while the Irish landscape enjoys a relatively rich heritage of agricultural biodiversity, the outlook for the conservation status of most of our farmland habitats

has been classified as ‘poor’ by the National Parks and Wildlife Service.

### What Kind of Sustainable Intensification do we Want?

With the development of the Food Wise 2025 Strategy, we now find ourselves at a crossroads of sustainable production: can we increase the value of our food production, and at the same time reduce its environmental impact. In other words: can we make sustainable intensification happen? The answer depends on what each of us mean when we mention “sustainable intensification”.

Teagasc is currently finalising a new simulation model of dairy farms (named the €riN model) that can assess the economic and environmental implications of various approaches to sustainable intensification. Initial projections of this model suggest that it is technically possible to increase the milk output of a ‘typical’ dairy farm through ‘knowledge intensification’. The environmental impact of this intensification is somewhat of a paradox: on the one hand, the environmental losses per litre of milk will continue to fall. On the other hand, the model projects that total nutrient inputs, per hectare, or per farm, in this growth scenario are likely to increase. This scenario gives rise to a challenge for research, farm advisory and farmers, namely to ensure that these higher inputs do not lead to increased harmful nutrient losses to water and air.

This means that we are faced with a difficult dilemma: which type of sustainable intensification should Irish agriculture aim for: reducing ‘emission intensities’ (losses per plate of food) or reducing total losses (per hectare, per farm)? This debate is taking place, not only in Ireland, but worldwide, and the answer is leaning towards “a bit of both”. Some environmental impacts take place at a local level, for example: the impact of agriculture on local water quality. Technically, it is not possible to ‘offset’ a local decline in water quality with an increase elsewhere. In this case, environmental pressure is best described by total nutrient losses to water, regardless of food output. At the other extreme, the impact of greenhouse gases is global, which means these emissions can be offset between regions. In that case, the emission intensity is the more appropriate indicator of sustainability.

### Where Do We Go from Here?

We should have no illusions about the magnitude of the challenge ahead. Making sustainable intensification a reality will rely on the full implementation of each of the many recommended actions of the Food Wise 2025 Strategy. We must continue our relentless pursuit of new technologies and tools for farmers through investments in research. At the same time there is an urgent need for additional knowledge transfer initiatives to further enhance farm efficiency through existing, proven tools and technologies. Equally, there is an important role for policy to create an enabling environment that encourages the uptake of best practices.

In October 2014, we saw such a policy breakthrough in the Conclusions of the European Council discussions on the Climate and Energy Framework for 2030. This meeting of the EU Heads of State recognised, for the first time, that the sustainable management of land should be accounted for in policies on agriculture and climate change. In practice, this means that, once the strategy has been finalised by the European Commission, practices such as farm afforestation, proper grassland management and restoration of drained organic soils can be accounted for as positive steps towards sustainable intensification. Contrary to some reports, that does not mean a ‘derogation’ or ‘softer greenhouse gas target’ for Ireland. It simply means that we will be allowed to use more of the tools that we have available in our sustainability toolbox.

However, making this happen will require a concerted action by everyone involved. In that context, there are two threats to this aspiration: the first threat is complacency, where we pride ourselves on our ‘green credentials’ and ignore the fact that the environmental goalposts are moving fast and far ahead. Oppositely, the second threat is the polarisation of the national debate on sustainable agriculture: time spent on arguments equals time lost on making progress.

This principle of working together does not only apply at national level, but also internationally: only by working together can we move the discussions from ‘proving’ to ‘improving’ our green credentials. In this context, Ireland can justifiably pride itself on its leadership: the Department of Agriculture, Food and the Marine and Teagasc are jointly chairing the Livestock Environmental Assessment and Performance (LEAP) partnership of the United Nations Food and Agriculture Organisation (FAO): a partnership of NGOs, industry and governments with a common goal: to embark on a path of continuous improvement of the sustainability of livestock production. And just like the world is looking to learn from Ireland on the topic of ‘mainstreaming sustainability’, Ireland may draw lessons from this global initiative on ‘working together towards a shared goal’.



**Rogier Schulte** is Professor in Translational Research on Sustainable Food Production at Teagasc (the Agriculture and Food Development Authority of Ireland). He is responsible for bringing together all the knowledge on sustainable agriculture, and ‘translating’ this into policy advice. In this capacity, he works closely with Ministries in Ireland and the European Commission.  
Email: [rogier.schulte@teagasc.ie](mailto:rogier.schulte@teagasc.ie)