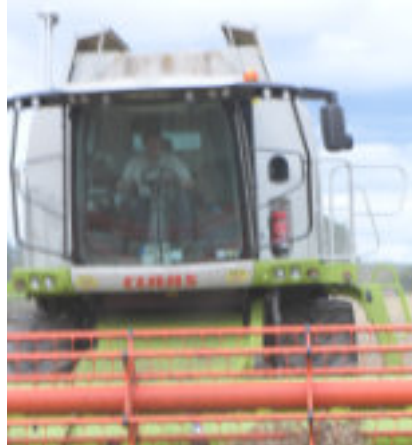
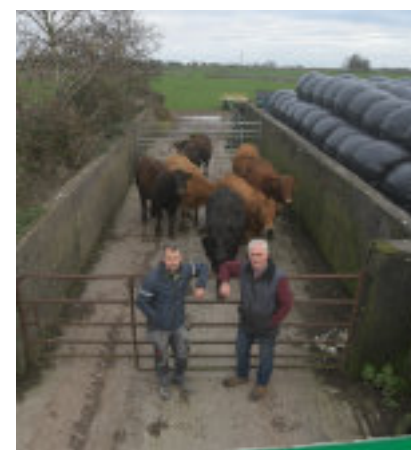




Advancing Innovation, Sustainability and Technical Performance of the Agri-Food Sector in 2024



Teagasc Values



Fostering Respect

We foster a culture of respect where we listen and take action to help everyone, prioritise inclusion, recognise the strength in our differences and promote positive well-being



Striving for Excellence

We endeavour to consistently deliver excellence & value for money



Acting with Integrity

We deliver our work with integrity for the common good, and we are accountable for our actions and decisions

Table of Contents

Foreword	2
Executive Summary	3
Progress on Climate	10
Progress on Water Quality	20
Generational Renewal	26
Capacity Building	34
Teagasc Education Delivery 2024	35
Driving Innovation Through the Walsh Scholars Programme.....	40
Teagasc Advisory and Research Activity Supporting Farm Incomes, Technology Adoption and Sustainability	44
Sector Performance Reports.....	52
Dairy	54
Beef	62
Dairy Beef.....	68
Sheep	74
Pigs	80
Tillage	86
Horticulture	94
Forestry	100
Grass Growth.....	106
Soil Fertility	110
Science-Based Innovation Delivering a Better Food Industry	114



Foreword

Prof Frank O'Mara

Director, Teagasc

This publication sets out key indicators of the performance of the agri-food sector from a technical and productivity point of view. It also looks at farm incomes and indicators of environmental sustainability which are particularly important in our world today. Good technical performance underpins farm profitability and environmental sustainability, and Teagasc research, education and advisory programmes are focused on improving the performance indicators included in this report. Weather is a key variable in agriculture, and must be kept in mind when interpreting the data. Social sustainability is also getting increasing attention, and we review a number of indicators in this area, particularly concerning generational renewal. Many of the indicators published are based on unique Teagasc datasets such as the National Farm Survey, PastureBase Ireland and NMP online. Many more are based on datasets of organisations such as the CSO, ICBF, DAFM, Bord Bia and the EPA, and we are grateful for these data.

The report also sets out some highlights from Teagasc's programme that supported the sector. Our advisory

service supports farmers with improvements in technical performance in addition to schemes support for our 44,000 clients. Our education service has over 3,600 learners as well as supporting the education of almost 1,500 students in higher education institutes. This is building human capacity for the sector, as does our Walsh Scholarship programme and other post graduate programmes. Our research underpins our technical advice to farmers and the food industry, as well as supporting policy formation. Innovation is very important for the food sector, and we outline the level of engagement the sector had with our innovation support facilities. Our staff could not do their work without the funding provided mainly by the DAFM, and also funding agencies such as Taighde Éireann - Research Ireland, Enterprise Ireland, the EPA and the Horizon Europe programme, as well as funding from farmers via the dairy and pig levies and industry funding. We thank them and also thank our many partners, both Irish and international. And finally, I would like to thank our farmer and industry stakeholders for their support and loyalty, we greatly appreciate it.

Executive Summary

The purpose of this report is to look at the farm performance of the main farming sectors in 2024. This underpins the sustainability of the agrifood sector, particularly the economic and

environmental dimensions, and by virtue of its impact on farm profitability, contributes to generational renewal, a very important part of social sustainability.



In terms of economic sustainability, 2024 was a good year for farm incomes despite very challenging weather conditions for the first half of the year. Incomes in all the main farming sectors increased in 2024 compared to 2023 (Teagasc estimates, Outlook conference, 3 Dec 2024), albeit after declines in 2023, which were particularly steep in the

dairy and tillage sectors. This was helped in 2024 by the higher farm gate prices in the second half of 2024 for milk, beef and sheepmeat and the good grass production and grazing conditions in the autumn/early winter period which facilitated a recovery in animal performance.

Climate and water quality are particularly important dimensions of environmental sustainability. Greenhouse gas emissions from agriculture decreased by 4.6% in 2023. Significant advances were made in 2024 in relation to adoption of measures to reduce greenhouse gas emissions. Nitrogen (N) fertiliser use was close to the target set for 2030, while protected urea made up 27% of straight N use, with a target for 2030 of 95%. However, little progress is being made with cattle age at finish and lime use, and forestry planting was well below target in 2024. Research produced through the Teagasc Climate Centre is driving innovations in nutrient management, carbon sequestration, and methane reduction. The Signpost Programme demonstration farms inform real-world examples of climate-smart

farming and sustainable practices. Over 15,000 farmers have been enrolled in the programme by Signpost Climate Advisors. Support tools like AgNav and AgPlanner provide farmers with data-driven insights to optimise sustainability. In relation to water quality, the EPA report for 2016 to 2021 shows that over half (54%) of Irish surface waters are in good or better ecological status. The Water Framework Directive requires all EU Member States to achieve at least good status in all water bodies by 2027. Recent EPA data indicates that nitrogen concentration in 20 selected rivers has declined in 2024 relative to 2023, which is welcome. In 2024, Teagasc launched the 'Better Farming for Water: 8-Action for Change' campaign which will build on existing programmes.





In line with other countries, the Irish farming population is ageing, and the proportion of young farmers has been in decline over recent decades. Data from the National Farm Survey reports that 33% of Irish farmers are aged over 65, with an average age of 58 years. Teagasc activities contribute strongly to capacity building for the sector. Over three thousand, six hundred students participate in Teagasc education programmes, and surveys undertaken 5 years after graduation consistently show over 90 percent are involved in farming, but with an increase in the proportion of these which are in part-time farming. The Teagasc Walsh Scholarship Programme is also a key contributor to capacity building for the sector, as is the Knowledge Transfer Masters Programme.

Some technical performance indicators across the sectors improved in 2024, while others remained the same or dis-improved. Weather is a key variable in agriculture, and must be kept in mind when interpreting the data. In dairying, cow numbers declined (circa 1%) with milk output finishing the year very similar to 2023, despite milk output being down cumulatively by over 5% by August. This was the first time cow numbers declined since 2009. Costs per unit of output were relatively stable in 2024 with a 17% increase in price. There was increased use of sexed semen and a strong movement in the use of AI beef sires for non-replacement pregnancies. The carbon footprint of Irish milk showed a continued downward trend, dropping from 1.02 kg of CO₂e/kg Fat and Protein Corrected Milk (FPCM) in 2018 to 0.93 kg of CO₂e/kg FPCM in 2024.



In beef, there was a small increase in the total number of cattle finished in 2024 over 2023 (1.8 m vs 1.78 m). Prime cattle carcass weights reduced by 5 kg and age at finish increased by 11 days. These impacts are largely attributed to weather conditions in 2023 and early 2024. Of the animals finished, 60% were of a dairy origin relative to 58% in 2023. Direct costs as a percentage of output reduced from 57% to 52% due to the increases in beef prices. The Commercial Beef Value (CBV) of calves from suckler herd and the non-replacement progeny from the dairy herd continued to increase at a largely similar rate of €1 per year. In 2024, Minister McConalogue launched the Dairy Calf-to-Beef 10 Point Action Plan to increase the sustainability of dairy calf-to-beef systems. Some of the key actions undertaken in 2024 include increased

use of sexed semen straws to approximately 300,000, an increase in the proportion of high CBV beef AI on dairy farms to 49%, and launching the Tipperary Dairy Beef demonstration farm.

In the sheep sector, direct costs as a percentage of output declined from 50% in 2023 to 43% in 2024 driven by an increase in lamb price. While weather was again a major challenge in the early part of 2024, especially around lambing time for many flocks, conditions were much improved in the latter half of the year. The value of sheep meat exports was down marginally (6%) to €400 million. There was a decline in breeding ewe numbers in 2023 of 3.7% reported in the DAFM 2023 sheep and goat census with a similar decline predicted in 2024.

In 2024, the Irish pig sector continued its recovery from the pig crisis experienced in 2022. The productivity levels have now recovered, however the national herd is smaller (8.8%) than in 2022. Pig feed costs were more stable and lower in 2024 than the previous two years. Margin over feed increased from 70 cent to 86 cent per kg of carcass weight compared to 2023. However, non-feed costs continued their upward trends. The sector continues to make progress on health and welfare despite the removal of zinc oxide and the reduction in the use of antibiotics.

In 2024, Irish tillage farmers faced significant challenges, including reduced autumn planting, delayed spring planting due to unseasonal weather conditions. Despite low yield expectations, favourable weather boosted spring crop outcomes, though winter crop yields suffered from waterlogging, disease, and viruses issues. The disrupted crop rotation led to a 50% drop in winter oilseed rape plantings in autumn 2024. However, winter cereal

planting in autumn 2024 is back on track, with crops establishing strongly.

For horticulture, 2024 was marked with two consistent challenges, labour and weather. Labour is the largest individual cost in sector and the unit cost of labour increased from 12.5% to 24.3% in January 2024, compared to 2023. The significant rainfall in late 2023 continued into 2024, significantly reducing early plantings of the main field vegetable crops. Wheat straw availability for mushroom compost production was also reduced. Improving field conditions from the summer onwards were welcome, with favourable growing and harvesting conditions.

The evolving forest sector is increasingly important to rural economies and a highly significant policy driver at national level. In 2024, 1,573 ha of new forests were planted while over 6,000 hectares (ha) of approvals for new planting were issued by DAFM. Timber prices remained steady, while timber harvesting levels were reported as somewhat behind 2023 levels.



Grass growth and soil fertility are two very important indicators for most Irish farmers. Grass growth in 2024 was 8% below average based on data on farms from PastureBase Ireland, with some recovery in the autumn compensating somewhat for an 11% drop in spring and summer. The reduced spring and summer grass growth was associated with low temperatures and high rainfall in spring and low rainfall in the south in summer. The 2024 Teagasc Soil Fertility Report outlined that while there was a small recovery in K fertiliser use in 2024, both P and K fertiliser use was much lower than in 2021. Nevertheless, some soil fertility trends improved in 2024: optimum soil fertility for pH, P and K on dairy farms increased from 19 to 24%, and tillage soil K Index 3 and 4 increased from 61% to 67%

Science-driven innovation in the food industry complements good technical performance at farm level in terms of overall performance of the agri-food sector. In 2024 Teagasc research and innovation delivered significant advancements to the food industry to enhance safety, quality, and sustainability, along with supporting a range of new products and processes through knowledge transfer. Over 150 companies utilised the state of the art Pilot Plant facilities in the National

Prepared Consumer Food Centre and Moorepark Technology Ltd, while 410 entrepreneurs from across Ireland benefited from training and support to scale their businesses through the Food Works and Bia Innovator Programmes. Notable successes include providing science based solutions to dairy Co-operatives including Tipperary Co-Op Ltd to enable expansion into new value-added product categories and Cork-based Ocras, which launched a range of texture-modified foods to enhance the quality of life for individuals with dysphagia demonstrating the transformative impact of Teagasc's collaborative research and innovation on the Irish food industry.

In summary the science-driven support activities of Teagasc contribute to improvements in financial and environmental performance at farm level and increased innovation in the food-industry. These are delivered across our research, advisory and education programmes. Continued progress in technical performance and innovation will be critical to maintaining the competitiveness of the sector, increasing its attractiveness to new entrants, and improving its environmental sustainability performance.





Progress on Climate





Climate

Significant advances have been made in 2024 to support farmers to adopt science-based solutions to meet climate goals while enhancing productivity and resilience. Nitrogen fertiliser use was close to the target set for 2030, while protected urea made up 27% of straight N use, with a target for 2030 of 95%. However, little progress is being made with age at finish and lime use, and forestry planting was well below target in 2024. Cutting-edge research through the Teagasc Climate Centre is driving innovations in nutrient management,

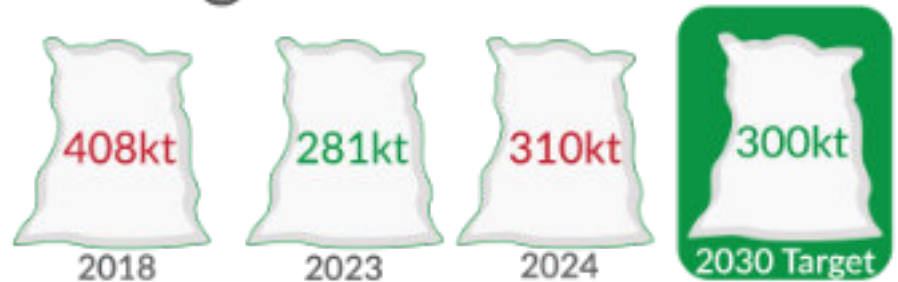
carbon sequestration, and methane reduction. Feed and slurry additives to reduce methane have been piloted on Signpost farms, but roll-out will require a robust business model. The Signpost Programme demonstration farms inform real-world examples of climate-smart farming and sustainable practices, and 15,000 farmers have been enrolled in the programme by Signpost Climate Advisors. Support tools like AgNav and AgPlanner provide farmers with data-driven insights to optimise sustainability.

Progress with Key Measures in Marginal Abatement Cost Curve

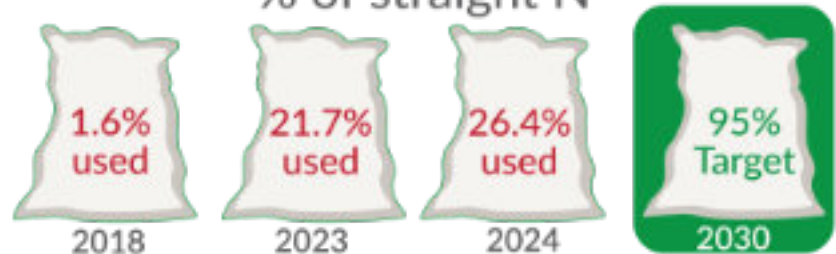


Agricultural Emissions fell **4.6%** in **2023** following a 0.7% fall in 2022. Emissions are down 2.9% since 2018 (EPA provisional data for 2023)

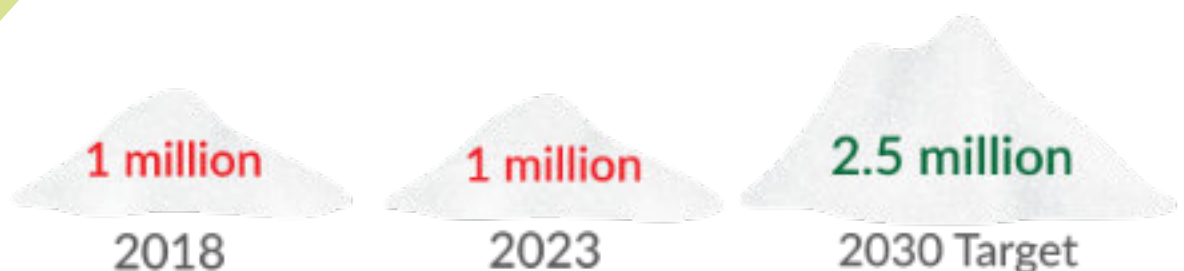
Nitrogen Fertiliser Use



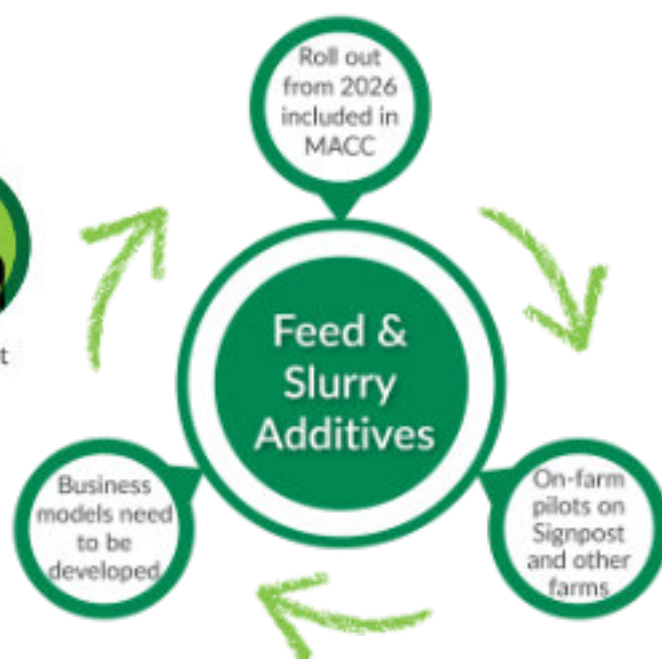
Protected Urea Use % of straight N



Lime Usage (million tonnes)



Age at Finish



Biomethane

Strategy launched



Organics

5,600 farmers in organics or in transition
5% approx. of land area vs 10% target for 2023



Forestry

2024 planting at 1,573ha vs target of 8,000ha

Diversification

Science-Driven Support Activities

Teagasc Counting Carbon Conference



The Teagasc Counting Carbon: Science and Practice Conference was held on 20th June 2024 at Teagasc Ashtown. Experts gathered to discuss innovative carbon farming techniques, focusing on bridging the gap between theoretical knowledge and practical

application in carbon counting for sustainable agriculture. Papers and presentations from the conference are available at <https://www.teagasc.ie/publications/2024/carbon-conference---counting-carbon-science-and-practice.php>

Scientists in the Teagasc Climate Centre produced 426 scientific papers from 2022 to 2024



Modelling Irish Agricultural GHG Emissions and Mitigation to 2050



This report was produced at the request of the Climate Change Advisory Council, and was a key part of the scientific information considered by the Carbon Budgets Working Group. The report indicated the potential to reduce agricultural emissions by 15% to 48%, compared to 2018. The report was a

very valuable input to the Council in their preparation of their proposed amendments to Carbon Budget 3 (CB3: 2031-2035) and proposed provisional Carbon Budget 4 (CB4: 2036-2040) sent to government. The Teagasc report is available at <https://www.teagasc.ie/environment/climate-centre/publications/reports/>

AgNav – an Online Sustainability Platform Designed for Farmers



AgNav, created through a partnership between Teagasc, Bord Bia, and ICBF initially focused on greenhouse gas and ammonia reduction. Through the partnership it expanded in August 2024 to include nutrient balance, helping farmers identify nutrient loss risks. With the forecasting tool, farmers can evaluate the environmental impact of actions like nitrogen fertiliser use, slurry spreading and grazing practices, working with advisors to implement tailored sustainability plans, reducing emissions and

improving nutrient management on farms.

AgNav is currently running as a pilot for dairy and beef farmers through the Teagasc Signpost Advisory Programme, providing tailored advice to enhance sustainability practices. In 2025 the platform will continue to evolve to support more farmers with new features, including carbon sequestration models, improved forecasting tools, and expanded coverage for additional enterprises including tillage, pigs and sheep.

Establish baseline assessment for

- Dairy Enterprise
- Beef Enterprise
- Tillage Enterprise prototype
- Soil Carbon



Forecast impact from

- Protected Urea
- Manure Management
- Economic Breeding Index
- Grazing season length
- Finishing age

Tailored farm sustainability plans to reduce

- Greenhouse gases
- Ammonia
- Nutrient balance

International Recognition for AgNav



In October 2024, AgNav won the prestigious International Dairy Federation Dairy Innovation Award for "Innovation in Sustainable Farming Practices – Environment" surpassing global leaders like Danone and Nestlé. Announced at the World Dairy Summit in Paris,

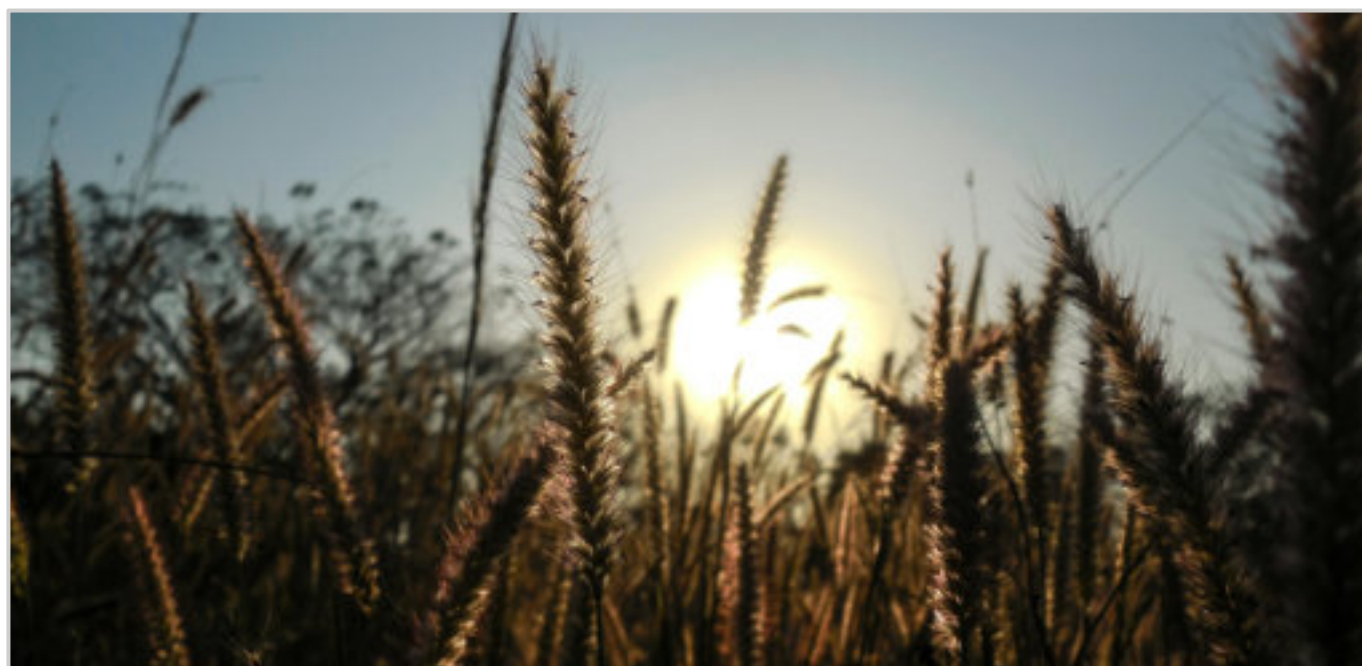
this recognition highlights how AgNav and Ireland is leading the way internationally in sustainable innovation in agriculture. The underlying methodology within AgNav is science-backed and certified ensuring reliability and accuracy.

Managing for Success - Teagasc's Climate Action Strategy 2022–2030



Teagasc's Climate Action Strategy 2022–2030 is vital for driving sustainable agricultural practices, reducing greenhouse gas emissions, and aligning Ireland's agri-food sector with national and global climate targets. The

development, launch and implementation of the strategy won the *Excellence in Innovation: Projects of the Year* category at the Project Management Institute 2024 awards (in association with PwC).





The Teagasc Signpost Advisory Programme aims to support farmers in contributing to emission reduction targets for the agricultural industry, providing tailored advice to enhance sustainability practices. With 21 dedicated climate

advisors across Ireland, the Signpost Advisory Programme helps farmers develop AgNav Sustainability Action Plans focused on reducing emissions and minimising nutrient loss risks. To date, over 15,000 farmers have enrolled in the programme.

Most Frequently Selected Actions in Sustainability Action Plans

59% Protected urea

41% Lime

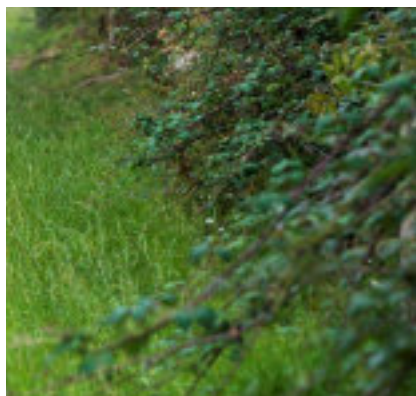
31% P&K to improve soil fertility

22% Clover

22% Low Emission Slurry Spreading (LESS)

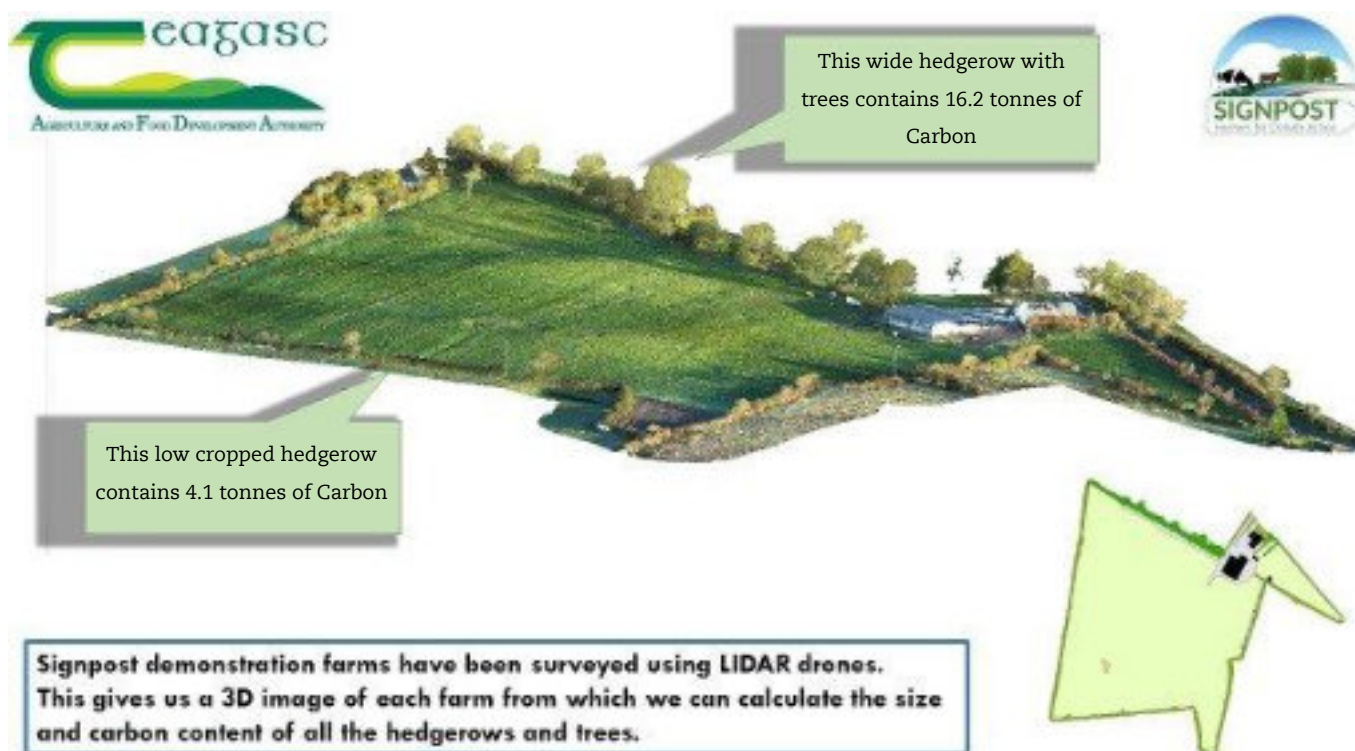


Carbon Stored in our Hedgerows



Lidar data was collected from 92 Signpost Farms in 2022–2023 to assess above ground carbon stocks on the Signpost Farms. Analysis has highlighted the impact of hedgerow management on carbon

stocks; in the example, the less intensively managed hedgerow contains four times as much carbon as the intensively managed hedgerow.



Teagasc FBD Environmental Sustainability Awards 2024 - Overall Winner

“Try Everything but don’t be afraid to fail” - John Walsh, Dairy Farmer, Ballylooby



John & Brendan Walsh, overall winners of the Teagasc FBD Environmental Sustainability Awards 2024, demonstrated significant progress in improving environmental sustainability across a number of areas, including reducing Greenhouse Gas (GHG) emissions. The Walsh's have reduced their chemical N use,

maximised the use of protected urea, enhanced biodiversity and carbon sequestration potential through better hedgerow management and protected waterways on the farm by reducing N surplus and improved fertiliser management (organic and chemical), while at the same time producing high quality food profitably.





Progress on Water Quality





Water Quality

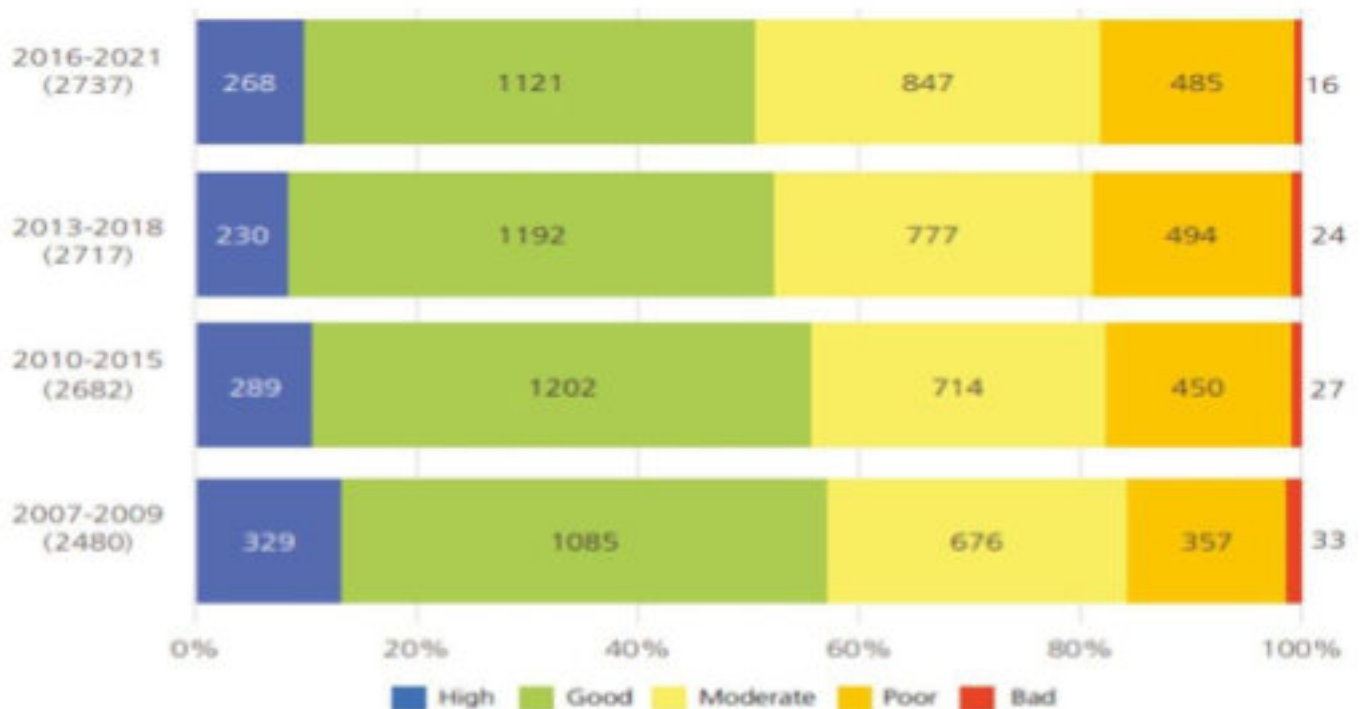
The EPA report for 2016 to 2021 shows that over half (54%) of Irish surface waters are in good or better ecological status. The Water Framework Directive requires all EU Member States to achieve at least good status in all water bodies by 2027.

Agriculture is impacting over 62% of waterbodies 'at risk' of not achieving good water quality. Recent EPA data indicates that nitrogen concentration in 20 selected rivers has declined in 2024 relative to 2023. In 2024, Teagasc launched the 'Better

Farming for Water: 8-Action for Change' campaign using a multi-actor river catchment approach to improve water quality. This will build on existing programmes, which aim to improve water quality such as ASSAP, Farming for Water EIP, Water for LIFE and Blue Dot Catchments. Key stakeholders include all farmers, farming organisations, meat and dairy processors, tillage sector, environmental regulators, local authorities, advisers/research personnel and media.

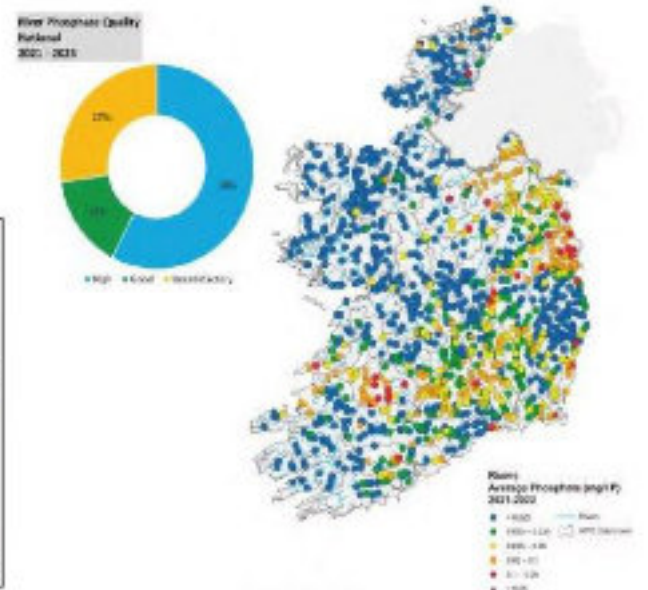
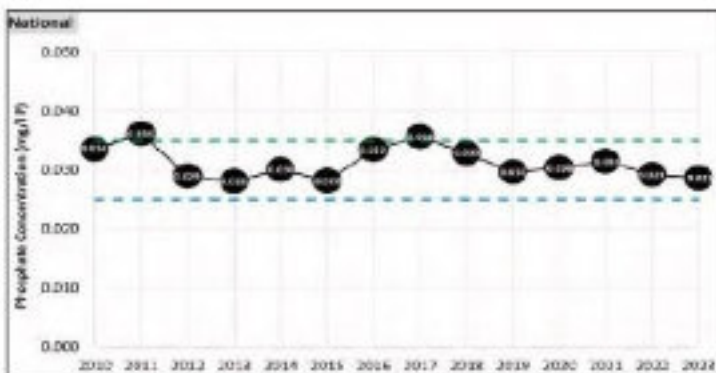
Technical Performance - Water Quality

Ecological status of monitored surface water bodies across each of the main assessment periods (number of water bodies indicated) (EPA, 2021)

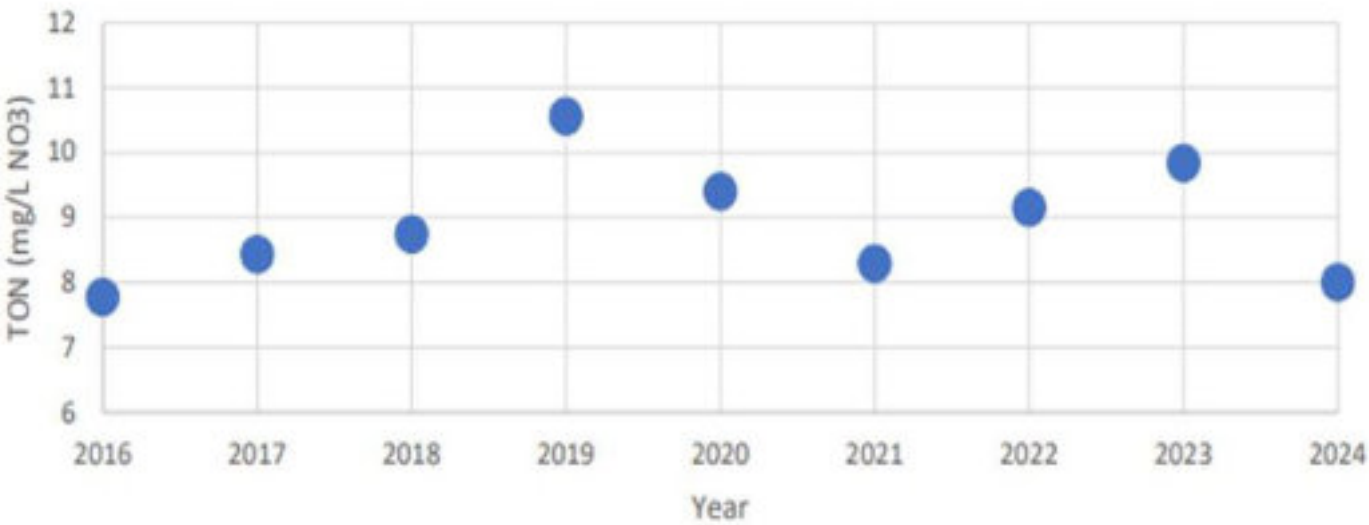


River Phosphate Concentrations 2021-2023

During 2021-2023, 27% of Irish rivers had phosphate concentrations >0.035 mg/l P (EPA, 2024)

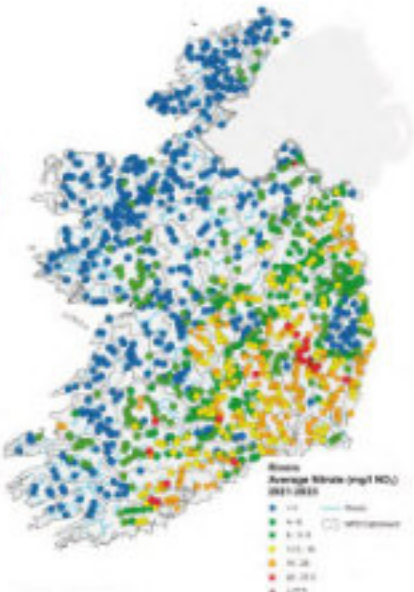
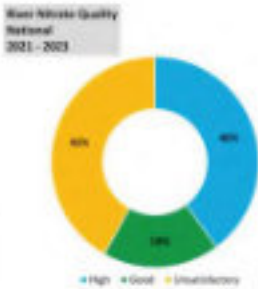
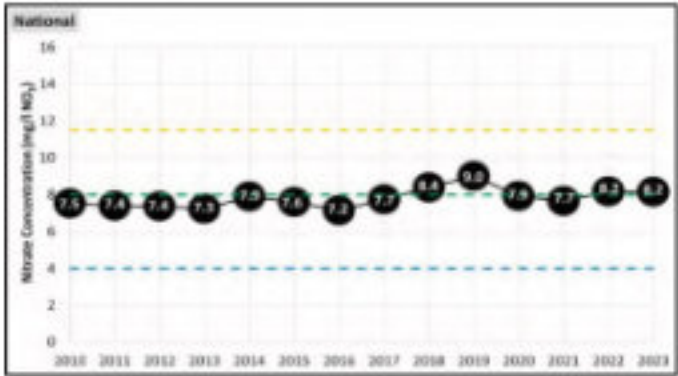


Early insight nitrogen concentrations for the Jan-Jun period of each year from 2016 to 2024 at 20 representative sites located around the country (EPA, 2024)



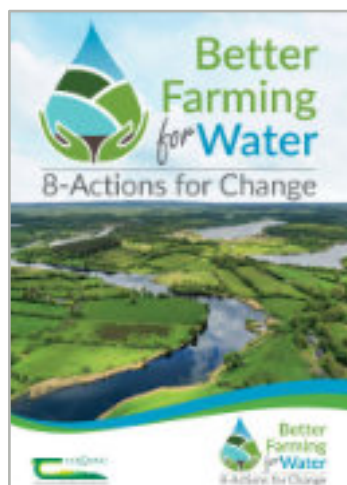
River Nitrate Concentrations 2021-2023

During 2021-2023, 42% of Irish rivers had nitrate concentrations >7.7 mg/l NO₃ (EPA, 2024)



Science-Driven Support Activities

Better Farming for Water: 8-Actions for Change



Launched in 2024, the Better Farming for Water campaign supports farmers in reducing nitrogen, phosphate, sediment, and pesticide loads in rivers. Its 8 actions focus on improved nutrient, farmyard, and land

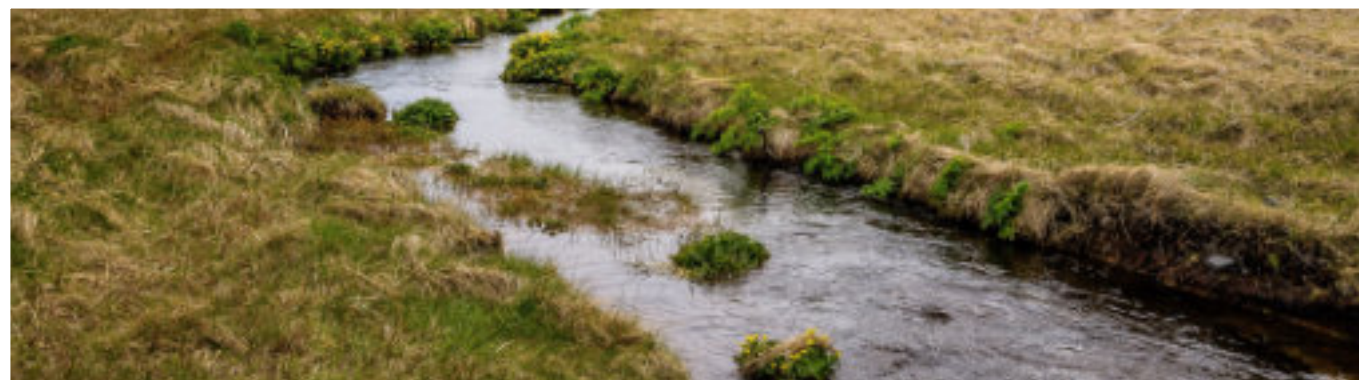
management. The campaign emphasises stakeholder engagement, raising awareness, and upskilling farmers, students, advisors, and industry professionals. It aims to drive significant improvements in Ireland's water quality.

Evaluating Water Quality Measures: The Agricultural Catchments Programme



The Agricultural Catchments Programme (ACP) was established in 2008 to monitor how effective the current GAP measure are (regulatory requirement), to monitor the influence of derogation farming, to support Ireland's goal of reaching good water

quality under the Water Framework Directive, and to provide science-based findings for policy. In addition, in Phase 5 (2024-2027), it will evaluate emerging mitigation actions at a sub-catchment/localised scale.



Farming for Water EIP: Protecting Water Quality



Launched in March 2024, the Farming for Water EIP provides funding to help farmers implement measures to protect water quality from agricultural losses. Based on ASSAP farm assessment data, a suite of 43 measures is

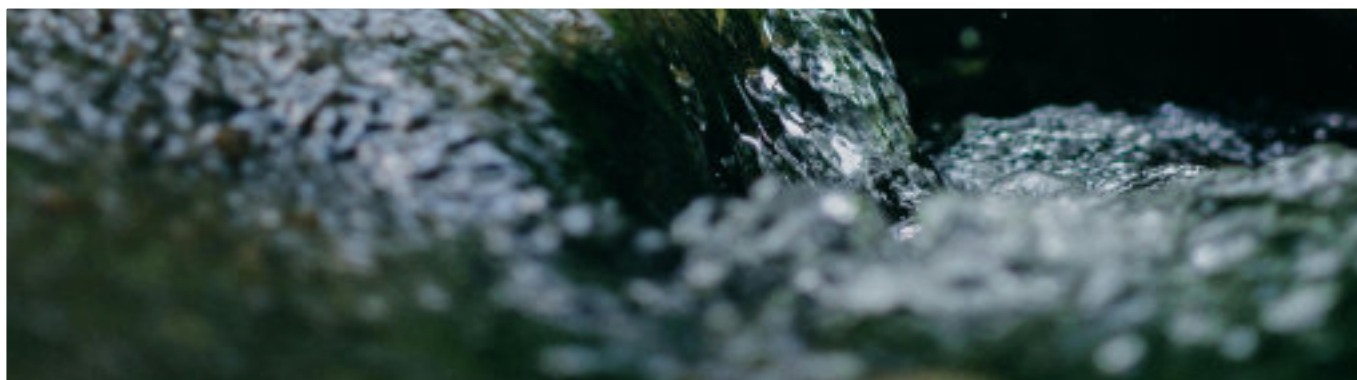
available for farmers in priority areas for action (PAAs) and nitrogen-impacted catchments in the south and east. ASSAP advisors support farmers by preparing and submitting EIP plans to access this funding.

ASSAP: Supporting Farmers to Protect Water Quality



The Agricultural Sustainability Support and Advisory Programme (ASSAP) continued providing free, confidential advice to farmers in priority areas for action (PAAs) to prevent nutrient, sediment, and pesticide losses. Key measures include

implementing “break the pathway” actions, reducing nutrient balances, and improving farmyard management. ASSAP advisors also assisted farmers in applying to the Farming for Water EIP, further supporting water protection efforts.





Generational Renewal





Generational Renewal

Generational renewal is a key objective of the CAP (2023–2027), aiming to ensure a sustainable and resilient agricultural sector for future generations. In line with other countries, the Irish farming population is ageing, and the proportion of young farmers has been in decline over recent decades. Data from the National Farm Survey reports that 33% of Irish farmers are aged over 65, with an average age of 58 years. Teagasc plays a pivotal role in attracting, supporting, and establishing younger generations in

farming. Central to this is facilitating the transfer of farm ownership and management between generations. In 2024, a range of initiatives to raise awareness and provide farm families with financial, legal, and practical advice on succession planning were undertaken. Collaborative farming models such as partnership arrangements were emphasised as stepping stones for phased transitions. In addition, ongoing collaborative research continues to inform and support targeted policy mechanisms.

Generational Renewal

Farmer Age Profile

* Average Farmer Age



Dairy
54



Cattle
59



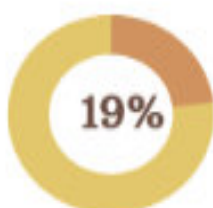
Sheep
56



Tillage
58

High Age Profile Household

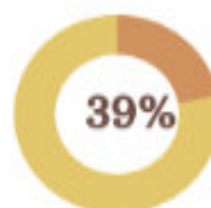
* Farmer is aged over 60, with no household members aged below 45



Dairy



Cattle



Sheep



Tillage

Farms with an identified successor

* Farmer aged over 60 years

Dairy

62%

Cattle Rearing

68%

Cattle Other

58%

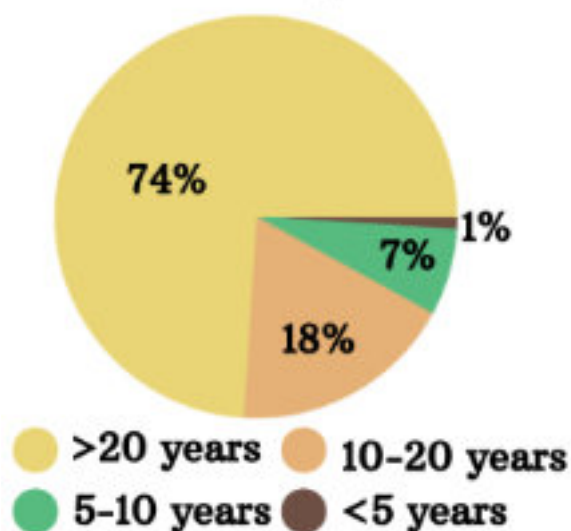
Sheep

68%

Tillage

36%

Farmer duration as main farm operator



Source: Teagasc National Farm Survey 2023

Generational Renewal



37%

of farm operators
expect the farm
transfer to occur in
the next 5 years

40%

expect the
transfer to take
place in the next
5 to 10 years



Farms currently without a successor

Intentions over the next 5 years

64%

Continue
farming as is

14%

Scale back
farming activity



86%

of identified
successors are male



28%

of identified
successors have a
3rd level agricultural qualification



20%

feel that
remote working will
facilitate succession
on their farm



Future Farm Plans

farmer interest in new schemes

25%

Organics



56%

Agri-Envt.

Source: Teagasc National Farm Survey 2023

Science-Driven Support Activities

Facilitating Generational Renewal on Irish Farms

Transferring the Family Farm Clinics



The clinics, in their 10th year, have been designed to guide farm families through the process of farm succession. They provide an opportunity for attendees to meet with Teagasc advisory and education staff as well as other relevant professionals e.g. tax and

legal. Six events were held in October 2024 across counties Donegal, Kerry, Cork, Wexford, Laois and Mayo. The clinics were attended by 1,240 farm families, who received 3,100 individual consultations from the 180 professionals available.

Engaging with Teagasc Clients on Farm Partnership Options



Registered farm partnerships are often seen as the first step in the process of transferring the farm to the next generation. With almost 430 registered farm partnership applications submitted in

2024, Teagasc has played an integral role in supporting farm families through the process. An information booklet, *Guidelines to forming a registered farm partnership* was also updated in 2024.

Sustainable Transition of the Rural Economy through Generational Renewal



Funded by the Department of Agriculture, Food and the Marine, this collaborative research project between Teagasc and the University of Maynooth published its final report in 2024. It recommends a

dual policy focus with a framework of supports for retiring farmers with adequate income provisions, as well as the creation of pathways for new entrants in the provision of a formal route to farm ownership.

Multi Actor Succession Teams for Generational Renewal (MAST)



This dedicated succession service has been piloted under a recently completed Masters study. The approach involves Teagasc advisers, in conjunction with other professional service providers (e.g. accountants, solicitors) assisting farm families to plan and deliver on their

succession objectives. The structure ensures that legal, financial, operational, and family dynamics are thoroughly considered and addressed, allowing families to explore their options and make informed decisions efficiently.

Data on Farm Demographics from the National Farm Survey (NFS)



Newly available data from the NFS indicates that 6 in 10 farmers aged over 60 have identified a successor. The figure varies by system, and is lowest on Tillage and Cattle Finishing farms, and on smaller farm operations. The average

NFS farmer is aged 58 years, with almost three quarters of them having been the main operator of their farm for more than 20 years. The collection of such data helps inform on and address the challenge of generational renewal on Irish farms.

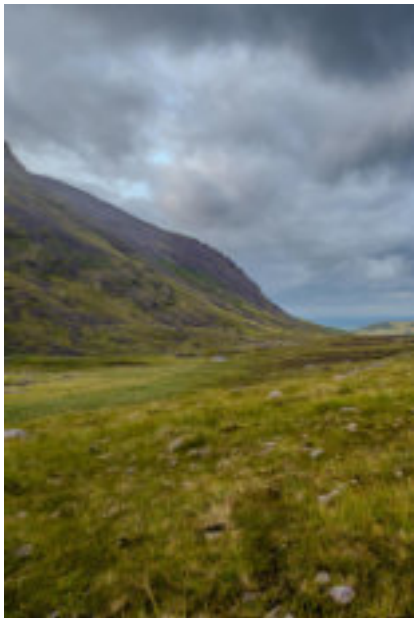
Addressing the Challenge of Delayed Farm Succession



Currently underway, this jointly funded research by Teagasc and Macra in collaboration with Ulster University, is exploring barriers to farm succession on Cattle and Sheep farms on the island of Ireland. The study is particularly

engaging with potential successors who are currently pursuing off-farm careers and are not involved in the day-to-day running of the family farm. The research seeks to address the challenge of succession on those farms.

Highlighting the Importance of Farming in Upland Landscapes



Teagasc in collaboration with CAFRE hosted a symposium on Upland Farming. The symposium took place in Co. Louth and built on the 2023 event which was held in Mayo. The symposium has become an annual event to highlight the important role of farming within Upland landscapes in sustaining the

communities that live in the upland regions and in terms of food production, carbon sequestration, water quality and biodiversity. Teagasc have also been working to increase the incorporation of content relevant to uplands farming systems in our Education programmes.



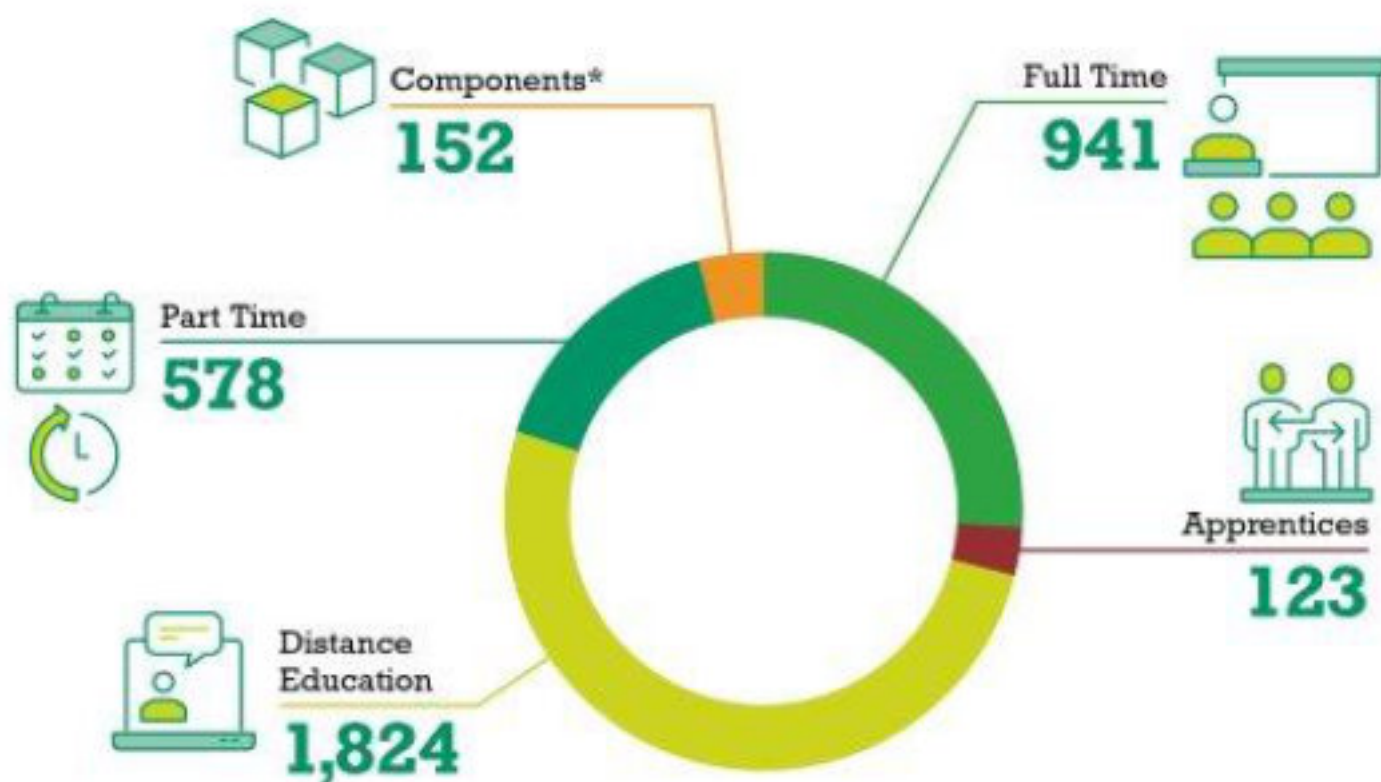




Capacity Building



Teagasc Education Delivery 2024



1,474

Teagasc Linked Higher Education Participation

ATU/DkIT/MTU/SETU/TUS/UCC/UCD



16

Further Education (FE) Courses



4

Higher Education (HE) Apprenticeship Programmes



Level 6
Programmes



Level 7
Programmes

4,723

Learners who received a QQI Award



Male
72%



Female
28%

*Components refer to learners who take modules within a course.

Science-Driven Support Activities

Apprenticeships



During January 2024, Teagasc hosted a live webinar to showcase the range of land-based apprenticeships, value of apprenticeship education with employers and testimonials from apprentices on their journey through the apprenticeship. A second

intake of apprentices in the land-based sector commenced in the Teagasc coordination colleges in September 2024. 2025 will bring the first graduates of the higher education apprenticeship programmes for the land-based sectors.

Economic Returns from Agricultural Education



Research undertaken by Teagasc and the University of Galway estimated a shadow wage for unpaid family labour on Irish dairy farms using data from the NFS. A shadow wage is a hypothetical estimate that reflects the value of unpaid labour provided by family members. The analysis reveals the importance of formal agricultural education in increasing

the economic value of that labour, which increases in line with the level of qualification received. The average shadow wage of farmers with formal agricultural education is almost twice that of those without (at €34 and €19/hour, respectively), and it increases when going from those with an Agricultural course to a Certificate in farming, to an Agricultural degree.



Teagasc Education Strategy (2025-2030)



The Teagasc Education Strategy (2025-2030) was developed across 2024 to address the evolving needs of the land based sector, ensuring that all people in the sector, especially young and aspiring ones, have access to high quality Further Education and Training (FET) and skills development. This strategy details the ambition, actions and enablers for the programme over the next five years to enable Teagasc to continue to

provide a quality education and skills development experience for learners. Key areas of focus include closer alignment of Teagasc to Further Education and Training, equivalence of Teagasc learner experience, enhanced coordination of programme delivery including apprenticeships and higher education delivery and examination of new and enhanced progression pathways for learners.

Teagasc/FBD Student of the Year



Danny Doyle from Rathangan, County Kildare is the overall winner of the Teagasc / FBD Student of the Year 2023 award. The awards, sponsored by FBD, were presented to the top graduates of Teagasc Level 6 agriculture, horticulture, equine and forestry training programmes in 2023. Danny Doyle completed a Level 5 Certificate in Agriculture and then a Level 6 Advanced Crops

and Machinery Certificate at the Teagasc Kildalton Agriculture College in Piltown county Kilkenny. He currently farms with his parents on a large scale tillage operation near Rathangan in County Kildare. In addition to winning the Overall Teagasc / FBD Student of the Year 2023 award he was successful in the Full-Time Agriculture Category award.

Knowledge Transfer Masters Programme



Teagasc in collaboration with UCD continue to provide post-graduate programme opportunities for those seeking to gain expertise and experience in Advisory and Extension. The programme is an important capacity building programme to enhance the advisory and extension skillset across

the sector. The annual conference associated with the programme took place in October 2024, at which Bryan Twomey, Emily Gowing and Rachel Clancy were awarded prizes for their presentations at the event related to their research projects while undertaking the programme.

5-year graduate survey

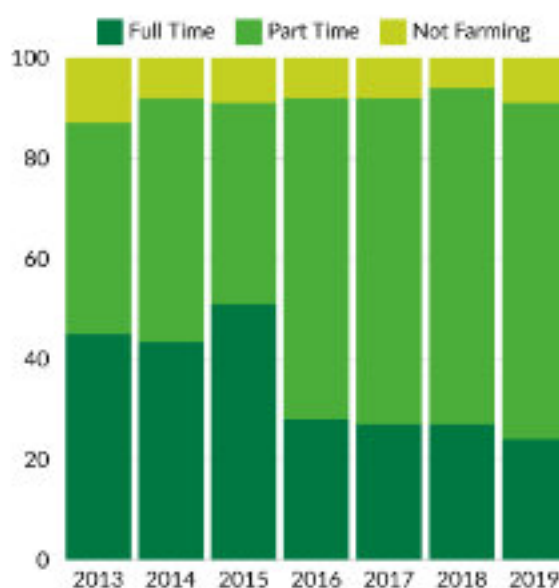


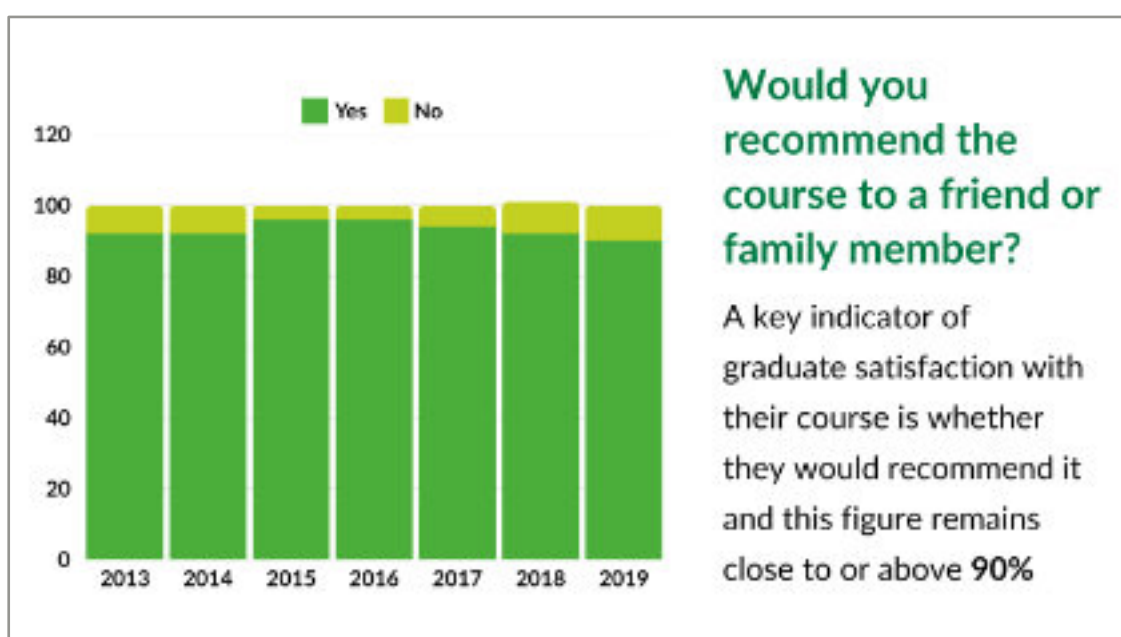
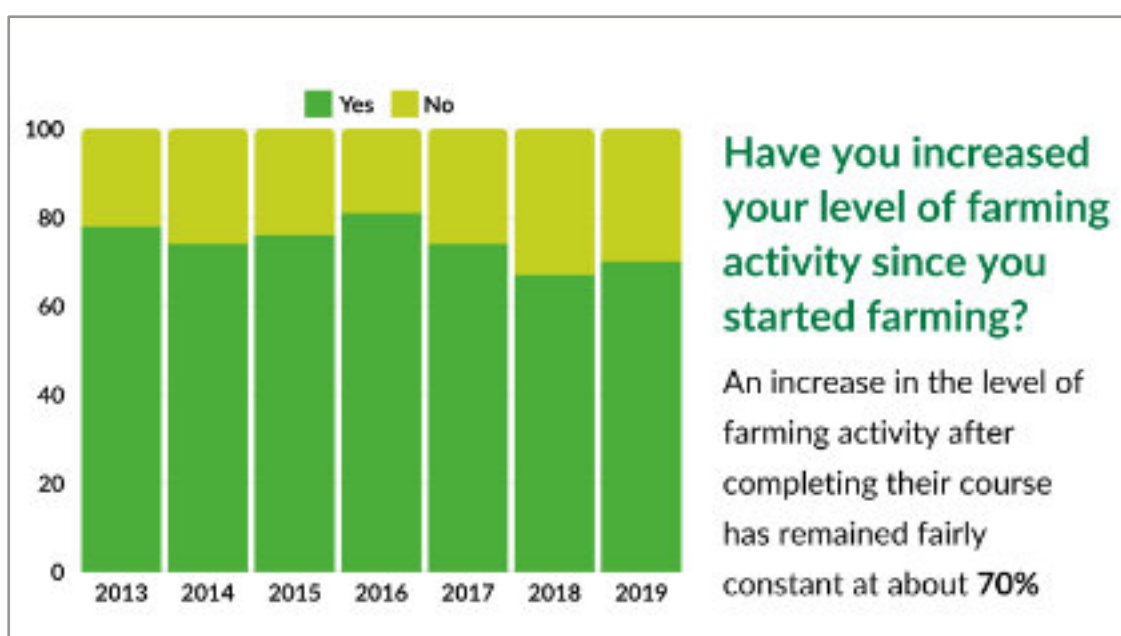
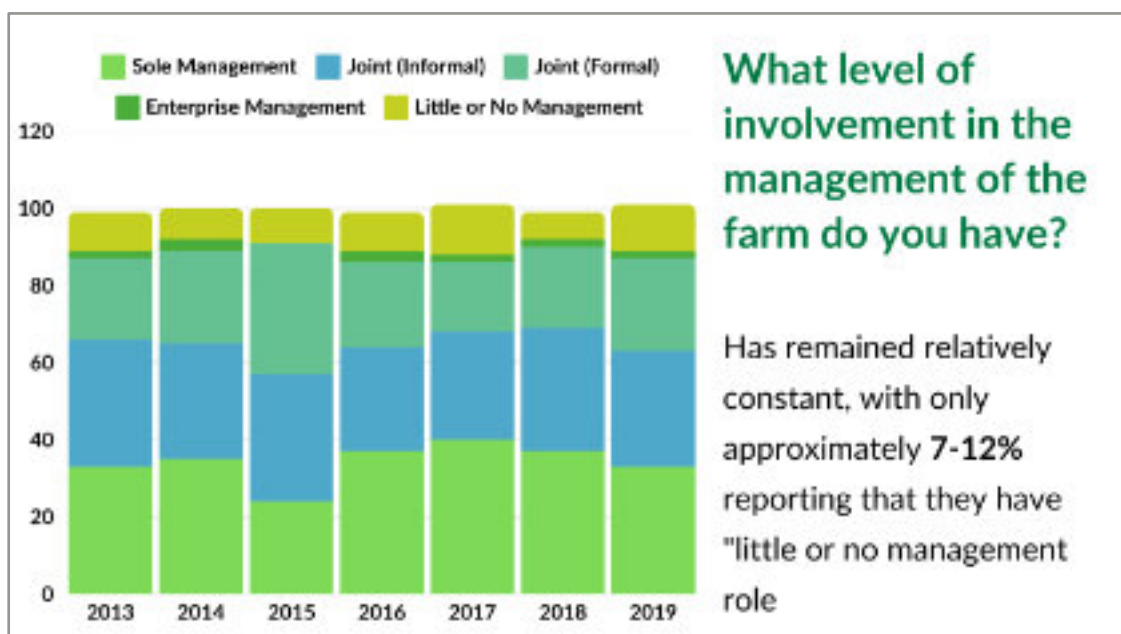
Gathering feedback from those who participate in our courses is a key component in the Teagasc Quality Assurance processes. In the Spring of each year, Teagasc Education staff contact by post all the people who

have graduated from our Level 6 courses in agriculture, horticulture, forestry, and equine five years previously to invite them to participate in a confidential, anonymous "5-year graduate survey".

Do you farm full-time, part-time or are you not farming at all?

The percentage of agriculture graduates involved in full time farming has fallen over time from **44.85 percent** in the class of 2013 to **23.71 percent** in the class of 2019





Driving Innovation Through the Walsh Scholars Programme

The Walsh Scholars Programme is a leading postgraduate research training initiative by Teagasc, dedicated to developing intellectual capital in agriculture, food, environmental science, agri-food economics, rural development, and related disciplines. The programme provides PhD and MSc candidates with an annual stipend of €25,000 and a maximum €6,000 contribution toward fees, supported by a €6.9 million annual

budget. In 2024, 220 scholars from 42 nationalities were hosted at Teagasc research centres. The scholars are registered with higher education institutions (HEIs), both nationally (86%) and internationally (14%). Teagasc offers 35–45 new scholarship opportunities annually, demonstrating its commitment to advancing industry knowledge and fostering innovation.



Lorna Twomey was announced as the overall winner of the Teagasc Walsh Scholar of the Year Awards 2024. Pictured (from left to right):

Jane Kavanagh, Head of Research Development and Walsh Scholarships at Teagasc; Professor Pat Dillon, Director of Research, Teagasc; with the winner of the Teagasc Walsh Scholars Gold Medal, Lorna Twomey and her mother, Mary Twomey



The 12 finalists of the Walsh Scholar of the Year Awards 2024 pictured with Prof Frank O'Mara, Director, Teagasc



The 12 Finalists of the Walsh Scholar of the Year Awards 2024

Animal and Grassland Research & Innovation Programme (AGRIP)



Lorna Twomey

Gold medal winner

Evaluation of chlorate development in milk and dairy products with specific focus on milking equipment cleaning protocols and maintenance of milk of high microbiological quality



Sarah Woodmartin

Finalist

Evaluating the inclusion of companion forages in sheep swards on dry matter intake, methane output, rumen function and meat quality



Emily Roskam

Finalist

Developing and validating novel technologies to reduced enteric methane emissions from pasture-based agricultural systems - METH-ABATE

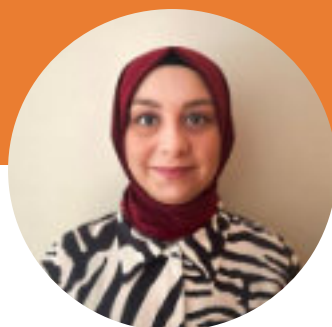
Food Programme (FP)



Niranjana Rose Edwin

FP award winner

Exploration of the Irish soil microbiome through metagenomic sequencing



Fatma Koc

Finalist

Benefits of Dietary Fibre on Human Gut Microbiome and Metabolome



Sara Pérez Vila

Finalist

Structuring alternative proteins extracted from grass and other alternative forages for food applications

Crops, Environment and Land Use Programme (CELUP)



Rachel Irwin

CELUP award winner

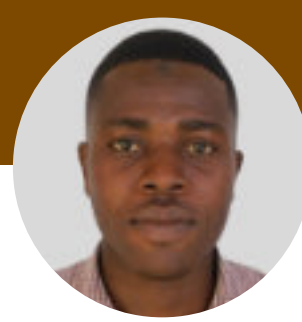
Increasing tree cover on dairy and drystock farms; the main barriers and perceptions that impede agroforestry uptake



Joy Clarke

Finalist

Exploring biocontrol and integrated pest management (IPM) of mushroom pathogens by *Bacillus* spp



Yahaya Jebril Amanor

Finalist

Impact of soil and grassland management on plant-microbial interactions that mediate soil organic matter mineralisation & nitrogen supply

Rural Economy and Development Programme (REDP)



Clarissa Leydon

REDP award winner

Sustainable Healthy Dietary Guidelines (SuHeGuide)



Shefali Pardeshi-Dhokale

Finalist

Explaining income volatility and risk management decisions in Irish dairy farming



Lori-Rae van Laren

Finalist

A framework for effective Co-operative development to draw lessons for upscaling and replication: lessons from a nascent Ugandan farmers' Co-operative

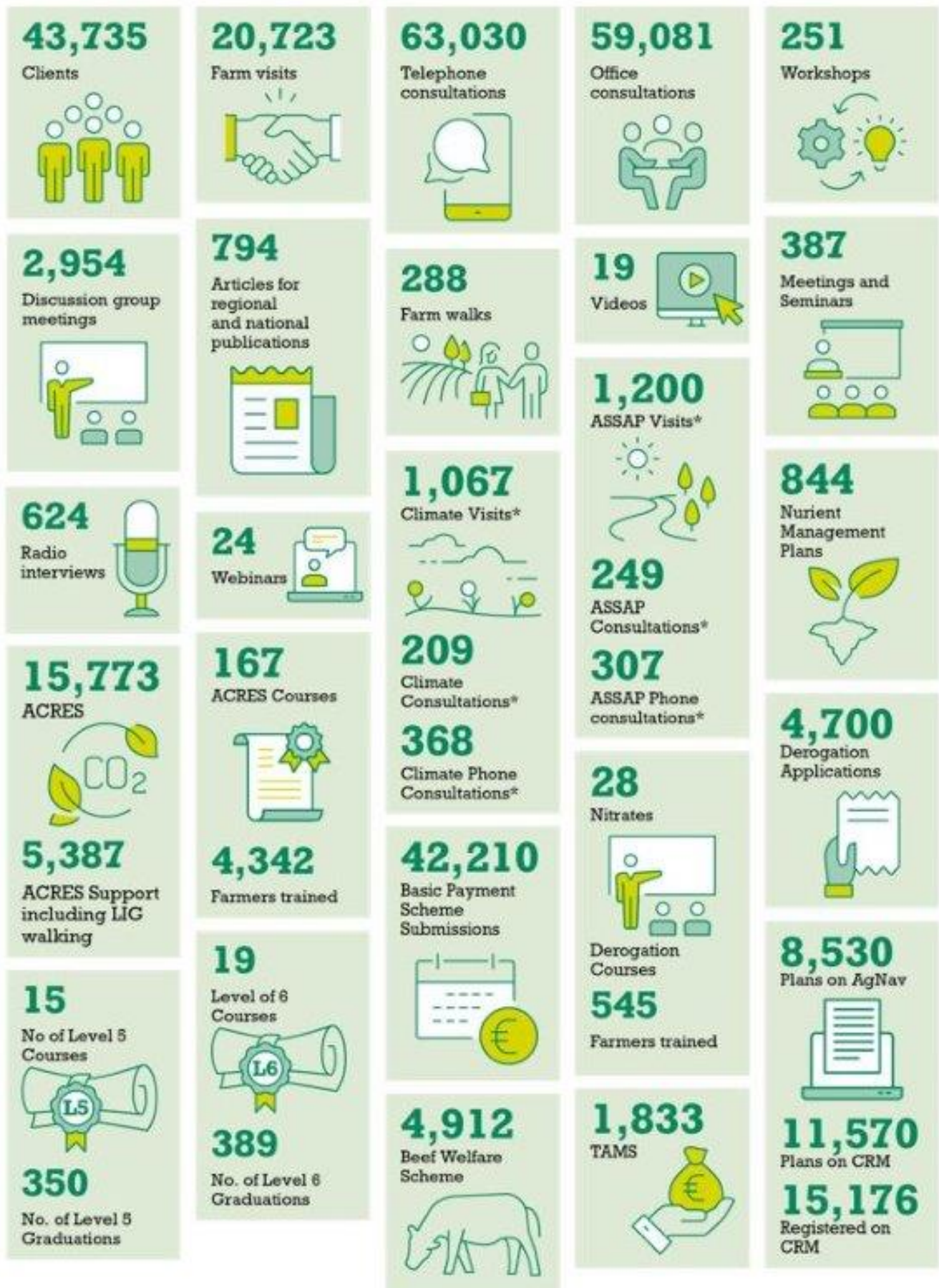


Teagasc Advisory and Research Activity Supporting Farm Incomes, Technology Adoption and Sustainability





Knowledge Transfer Activities by Teagasc Regional Advisors/Specialists in 2024



* already included in total visits / consultations

Advisory Support Activities

Advisors Supporting Clients



Teagasc made a significant impact in 2024 through its extensive knowledge transfer and advisory activities. Delivered over 12 Advisory Regions and over 50 public office locations, Teagasc advisors supported farmers with technical guidance, scheme applications, and sustainable farming practices. Serving 43,735 clients, Teagasc advisors conducted 20,723 farm

visits, 63,030 telephone consultations, and 59,081 office consultations, ensuring personalized support tailored to farmers' needs. Additionally, 288 farm walks, 251 workshops, 2,954 discussion group meetings, and 387 meetings and seminars were organized to provide farmers with critical insights and updates on emerging agricultural practices and technologies.

Future Advisory Service Strategy



Teagasc have undertaken a significant strategy development exercise over 2023-24. The implementation of this new strategy will begin in 2025, initially on a pilot basis in two advisory regions, with national rollout to follow. The objective of the strategy is to ensure the future protection of the technical and farm business development work that is a critical and central tenant of Teagasc

Advisory activities. This has become compromised in recent years and decades as schemes have become more centre-stage for their role in both farm income and for delivering policy objectives. Included in the strategy will be an increasing emphasis on ensuring advisory capacity is retained and available to clients for technical advice into the future.

Public Communications



In 2024, Teagasc advisors also reached beyond the network Teagasc farmer clients to the wider farming and rural communities through extensive media and communication channels including 794 articles for

regional and national publications, 19 educational videos, 24 webinars, and 624 radio interviews, ensuring widespread dissemination of practical knowledge and updates.

Supporting Environmental Sustainability



Supporting practice adoption on farms to improve environmental sustainability is a top priority. A total of 1,067 Signpost Advisory Programme visits and 1,200 Agricultural Sustainability Support and Advisory Programme (ASSAP) visits helping

farmers to improve Water Quality were conducted to promote environmental best practices. A total of 4,700 farmers were also advised and supported in meeting the requirements of the Nitrates derogation in 2024.

Support of Scheme Participation



Support for scheme applications continues to be a cornerstone of Teagasc's activities with clients. Advisors assisted with 42,210 Basic Payment Scheme submissions and supported 15,773 ACRES participants, through the delivery of 167 ACRES courses and other support activities such as

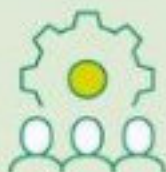
field and habitat scoring and non-productive investment applications within the ACRES scheme. A total of 4,912 Beef Welfare Scheme applications were also processed, along with 1,833 TAMS applications, helping farmers secure critical funding for farm development.



Teagasc Research Directorate 2024

Permanent
researchers

171



Contract
researchers

134



New publicly-funded
research projects
secured in 2024

92



Horizon
2020 and
Horizon
Europe
projects
ongoing in
2024

67



Horizon
Europe
funding -
13th

in Europe for
total funding
secured in
agri-food and
bioeconomy
theme



Horizon Europe
funding -

13th

in Europe for
total number
of projects
secured in
agri-food and
bioeconomy
theme



Active patent
families

32



New research projects
funded by
Teagasc in
2024

39



Number
of Walsh
Scholars for
2024

220



Licences/options/
assignments
agreements signed
with industry

47



Income from
licences/options/
assignment
agreements

€948,116



Funding secured from public
funding agencies, charities
and levies

€47.6 million



Invention
disclosures

27



Research Support Activities

Mental Health and Wellbeing



Research established that while farmers face occupational stressors affecting mental health, most maintain good wellbeing. To support struggling farmers, Teagasc participated in the development of, and led, the evaluation of

the On Farm Ground mental health signposting training programme for advisors. This initiative enhanced advisors' knowledge, capacity, and willingness to support farmer mental health.

VistaMilk



The second phase of VistaMilk, the multidisciplinary research centre funded by Research Ireland, the Department of Agriculture, Food and the Marine and industry, was launched in 2024. Led by Teagasc, this €40 million centre will develop and deploy digital technology

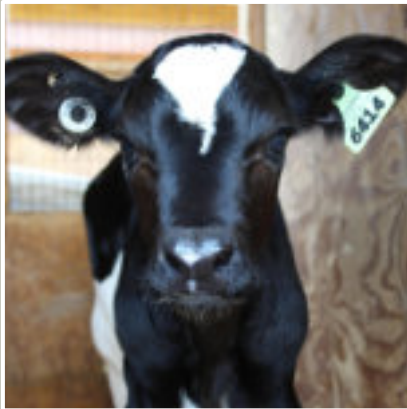
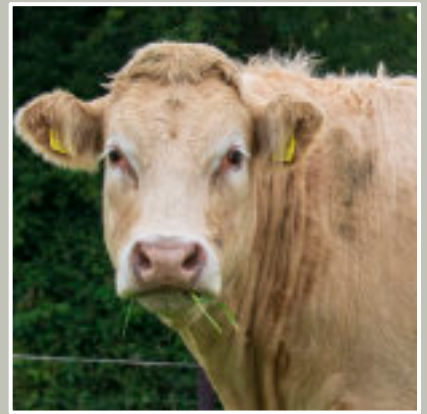
to improve dairy production and processing. VistaMilk will focus on technological innovation and enhanced sustainability across the dairy supply chain from soil to society, positively impacting the environment, animal well-being and the health of consumers.

'10 Things to Know About...'



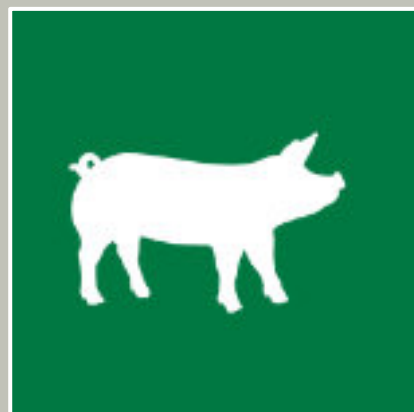
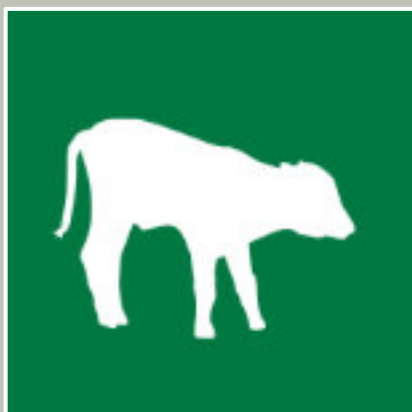
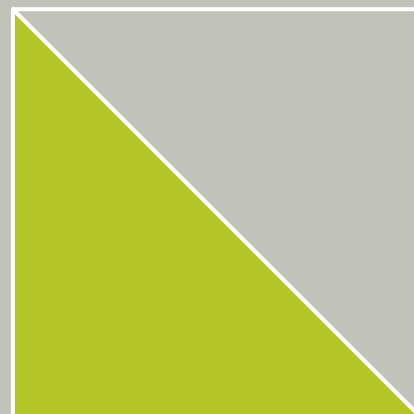
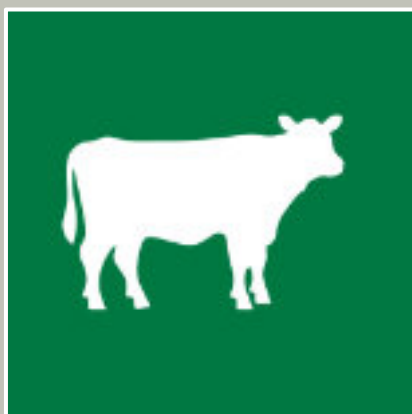
This magazine-style TV show, airing on RTÉ 1 and RTÉ Player, highlights Irish science and is produced by New Decade TV with support from BIM, EPA, HEA, and others, including Teagasc. Teagasc researchers featured in four episodes

in 2024 filmed at Ashtown, Johnstown Castle, and Oak Park, covering topics on food security, feeding the future, plastics, and conservation, with experts including Drs. Mullins, Daly, Ramos Luz, Pathania, and Kavanagh.



Sector Performance Reports







Dairy





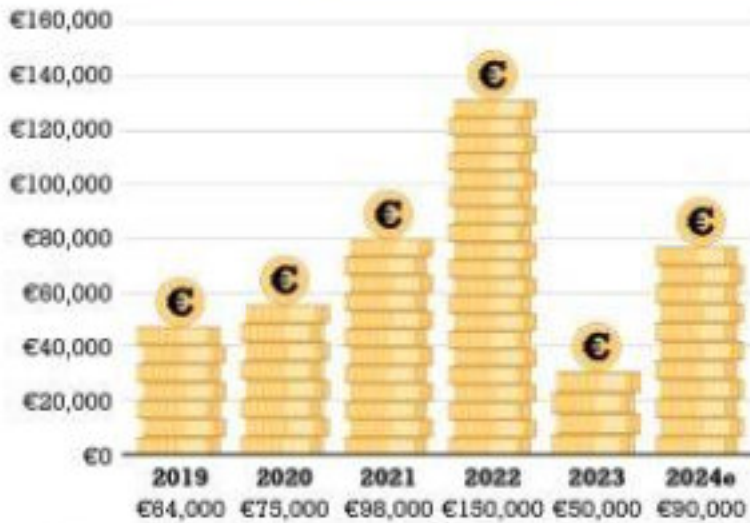
Dairy

There has been a strong recovery in family farm income in 2024 relative to 2023. 2024 was a year of two distinctly different halves with weather and price issues in the first half of the year followed by a strong recovery in the second half of the year. Cow numbers declined (circa 1%) with milk output finishing the year by declining by a similar amount, despite milk output being down cumulatively by over 5% by August. This is the first time cow numbers declined since 2009. Pasture

production declined in 2024 relative to 2023. Costs per unit of output were relatively stable in 2024 with a 17% increase in price. The CBV of calves born from the dairy herd increased through the increased use of sexed semen and a strong movement to beef sires for non replacement pregnancies. The carbon footprint of Irish milk showed a continued downward trend, dropping from 1.02 kg of CO₂e/kg FPCM in 2018 to 0.93 kg of CO₂e/kg FPCM in 2024.

Technical Performance - Dairy 2024

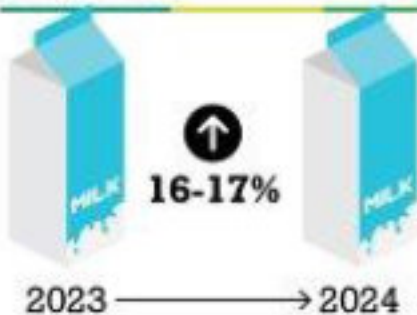
Family Farm Income*



Milk Production**



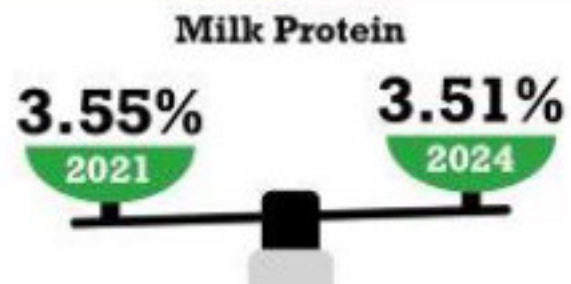
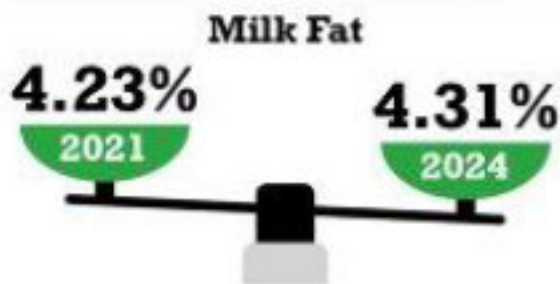
Milk Price**



Milk Solids**



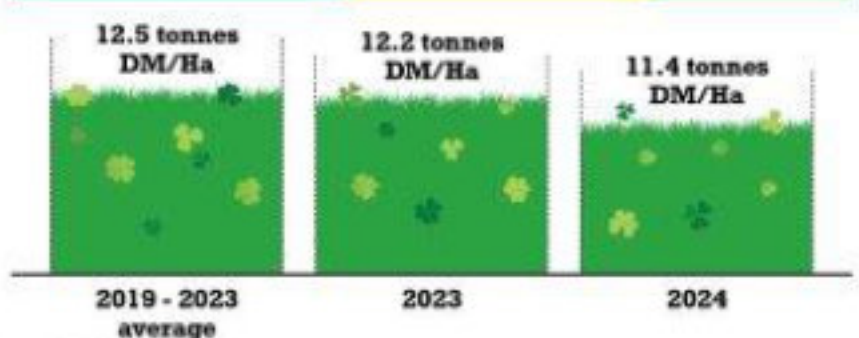
Milk Fat and Protein**



Cost/Kg of milk solids**

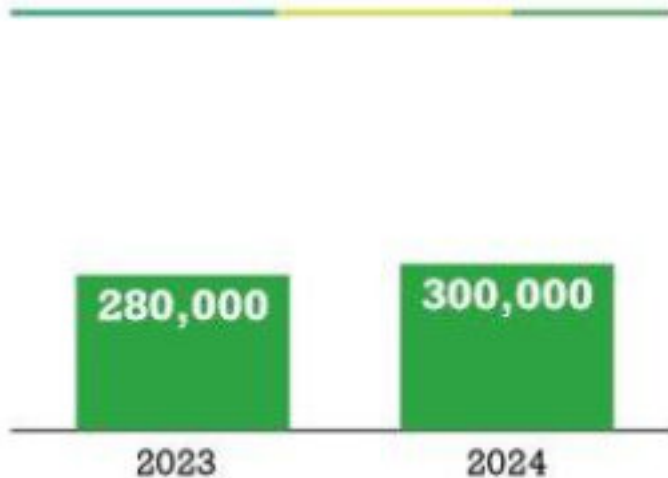


Grass Growth***

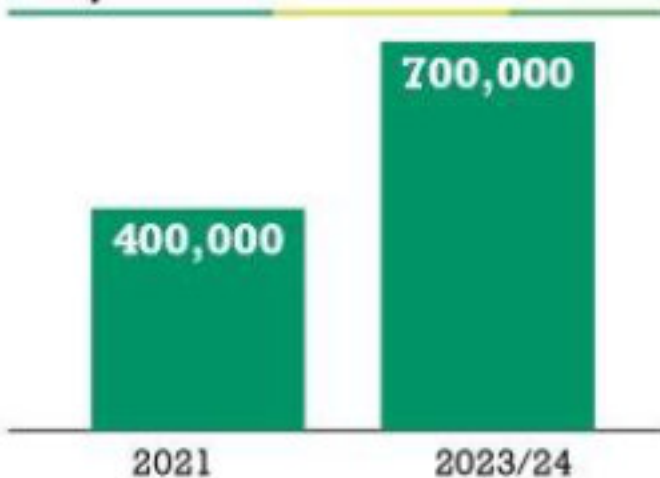


Sources: * FFI national farm survey, **CSO for milk and stock, ***PSI

Sexed Semen Straws*



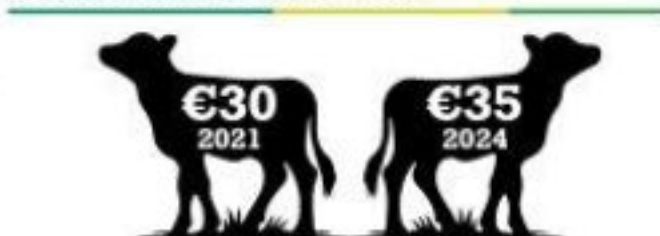
Dairy Beef Straws*



Economic Breeding Index (EBI)*



Commercial Beef Value*



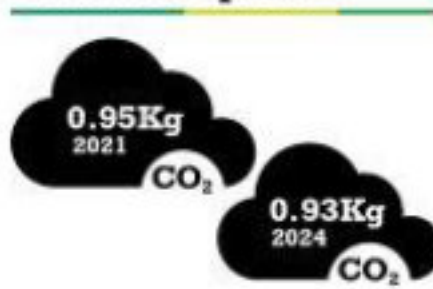
Calving interval (days)*



Calf Mortality Rates*



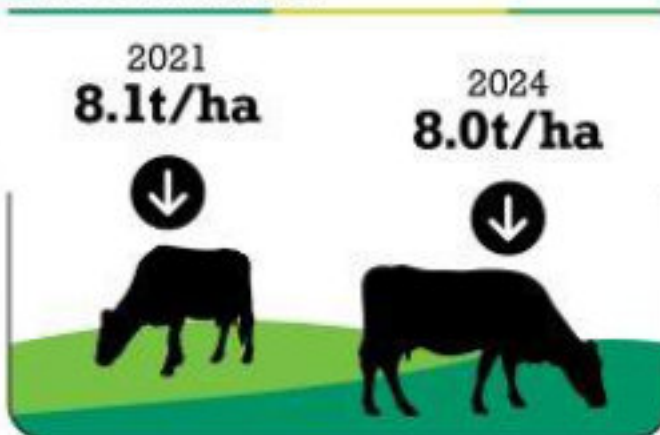
Carbon Footprint*



Nitrogen Balance**



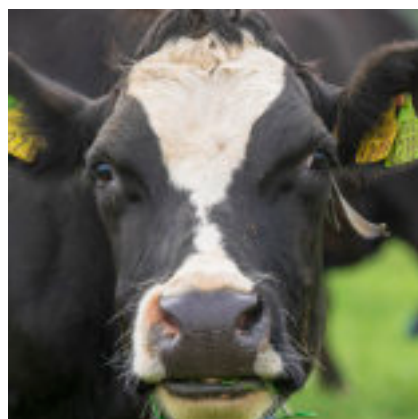
Pasture Utilisation**



Sources: *ICBF, **CSO

Science-Driven Support Activities

Sustainable Strategies for the Future of Irish Dairy Farming



The Teagasc Ballyhaise Open Day on 25th July 2024 focused on “Future Proofing Irish Dairy Systems.” Over 1,000 farmers learned about rising costs, reduced incomes, and strategies to

cut feed and fertiliser costs by using clover to replace chemical nitrogen. The event also featured a forum on successful models for succession in dairy farming.

Key Insights from the Teagasc National Dairy Conference



The Teagasc National Dairy Conference, held in Limerick on 27th November 2024, addressed key challenges and opportunities for dairy farmers, including recovering incomes, climate change, and water quality. Speakers highlighted the benefits of clover, protected urea,

and efficient grazing management for sustainable farming. The event featured practice-focused workshops and attracted 550 delegates, offering actionable insights to enhance farm performance while reducing environmental impacts.

Discussion Group Workshop Tackles Rising Costs



On 19th June 2024, a dairy discussion group workshop at Teagasc Moorepark addressed rising production costs. Attended by 160 farmers and facilitators from 72 groups, the event featured sessions on cost control, strategies to

reduce costs, and the future of discussion groups. It concluded with a visit to Curtin’s farm, showcasing clover’s role in boosting performance and reducing chemical nitrogen. A similar event in 2025 will focus on grassland management.

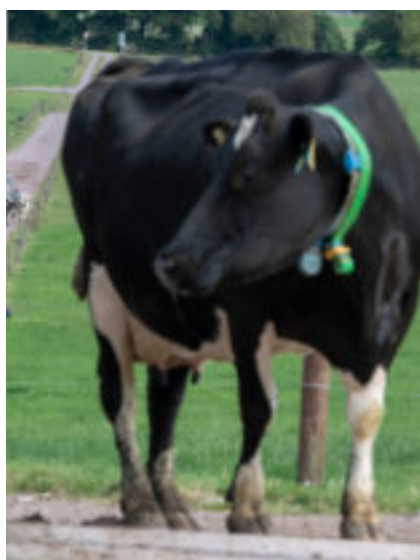
Enhancing Technology Transfer through Joint Dairy Programmes



The Teagasc Joint Dairy Programmes in 2024 provided a crucial platform for technology transfer, featuring monitor farm networks, GHG mitigation via the SignPost Programme, and on-farm events. Key activities included labour-saving tips (Lakeland),

feed security (Aurivo), water quality events (Dairygold) and breeding events (Tirlan). Targeted Knowledge Transfer support expanded reach to non-discussion group members, aiming to broaden the adoption of sustainable and profitable practices across the dairy sector.

Enhancing the Economic Breeding Index for Sustainability



In association with ICBF, the Economic Breeding Index (EBI) was revised to include a carbon sub-index and modified the beef sub-index to include age of slaughter in the beef indices. These modifications will increase the economic weight of traits that reduce greenhouse gas

emissions (age at first calving, calving interval) and reduce the economic weight of traits that increase emissions. The purpose of these updates is to accelerate the rate of genetic gain in the national herd by breeding more efficient and environmentally friendly cows.

Impact of EBI Genetic Selection on Methane Emissions and Milk Efficiency



Teagasc researchers examined how selecting cows with higher Economic Breeding Index (EBI) affects methane (CH_4) emissions and milk efficiency. Cows with high EBI produced 6.8% less methane per kilogram of milk solids (fat + protein yield) compared to the

national average. The findings show that improving EBI genetics increases milk solids output without raising methane emissions, thereby reducing overall emissions intensity and supporting more sustainable dairy production.

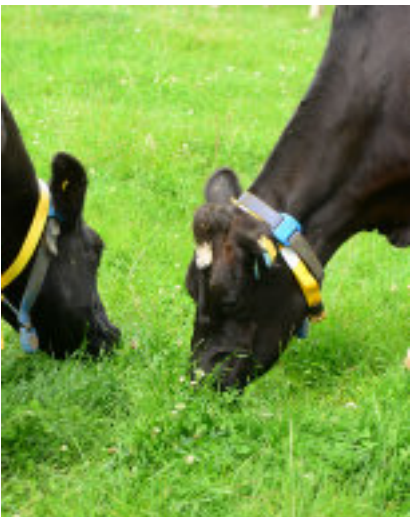
Grass10: Driving Sustainable Milk and Meat Production in 2024



The Grass10 Programme in 2024 continued to promote sustainable milk and meat production, emphasising the importance of getting the basics right, particularly soil fertility, as nitrogen usage declines. Practical improvements in grazing infrastructure, such as extra paddock gaps, were also highlighted.

Outreach activities included farm walks on all category winners' farms, with the largest event held on Patrick O'Neill's dairy farm in Longford. Weekly Grass10 updates reached 1,000 podcast listeners and 12,000 newsletter subscribers, supporting farmers in optimising grass-based systems.

Evaluating 3-NOP's Impact on Methane Emissions in Grazing Dairy Cows



Previous studies showed that adding 3-nitroxypropanol (3-NOP) to indoor cow diets reduced methane emissions by about 30%. However, little research has explored its effectiveness in grazing systems. A recent Teagasc study tested 3-NOP given

twice daily during milking and found a 5% reduction in methane over 24 hours. This highlights the lower effectiveness in grazing systems compared to indoor feeding, indicating further research is needed.

Genetic Potential for Improving Nitrogen Utilisation in Grazing Dairy Cows



A recent Teagasc study explored the potential to improve nitrogen utilisation in grazing dairy cows through breeding. The findings revealed that genetic improvement is achievable, but more data on nitrogen utilisation

traits is needed to enhance selection accuracy due to the low heritability of these traits. This highlights the importance of further research to optimise breeding strategies for improved efficiency and sustainability.





Beef





Beef

There was an increase in family farm income in 2024 relative to 2023 for all beef systems. Live animal trade increased in 2024 driven by a 75% increase in the number of weanlings exported from the suckler herd. There was an increase in the total number of cattle finished in 2024 over 2023 (1.8m vs 1.78m). Prime cattle carcass weights reduced by 5 kg and age at finish increased by 11 days.

These impacts are largely attributed to weather conditions in 2023 and early 2024. Of the animals finished, 60% were of a dairy origin relative to 58% in 2023. Direct costs as a percentage of output reduced from 57% to 52% due to the increases in beef prices. The CBV of calves from suckler herd and the non replacement progeny from the dairy herd continued to increase at a largely similar rate of €1 per year.

Technical Performance - Beef 2024

Calves born to suckler cows/year*



Suckler cows calving interval (days)*



Percentage of heifers calving between 22 and 26 months*



Ave. Suckler cow replacement index (€)*



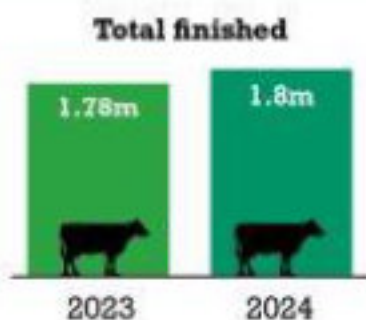
Grass production on beef farms***



Direct inputs as a % of outputs****



Total Cattle Slaughter data*



Nitrogen balance****



Carbon footprint****



Sources: *ICBF, **CSO, ***PBI, ****NFS IPCC System Boundary

Science-Driven Support Activities

BEEF2024 Open Day



The biannual Teagasc beef open day, BEEF2024, was held on Wednesday, 26th June 2024, with the theme “Securing Your Future”. This theme reflected the challenges and opportunities facing the beef sector, and focused on improving efficiency, profitability, and sustainability. Key topics included labour efficiency and farm

succession, essential for the sector’s resilience. Future Beef and DairyBeef500 farmers showcased how research-driven technologies enhance their operations, while Teagasc advisors and specialists engaged attendees through interactive stands, promoting best practices across the industry.

Engaging Farmers Through Demonstration Farm Walks



In 2024, four DairyBeef500 farm walks were held across Cork, Donegal, Kildare, and Meath, with the Meath event drawing over 300 farmers through its on-farm conference. Additionally, seven Future Beef farm walks took place in Sligo, Clare,

Roscommon, Offaly, Waterford, Galway, and Kilkenny, attracting over 500 farmers. These events provided valuable opportunities for farmers to engage with best practices and innovative farming techniques.

New Organic Research Programme 2024



A significant milestone in 2024 was the launch of the organic beef research programme at the enclosed farm unit in Kildavin, Johnstown Castle. The farm began its organic conversion, with the first cattle joining the

programme in late 2024. Complementary finishing studies are set to commence at Grange in early 2025, marking an important step in advancing organic beef production research.

Expanding Knowledge Transfer through Discussion Groups



In 2024, 15 Teagasc Knowledge Transfer (KT) groups visited DairyBeef500 demonstration farms, with increasing participation from dairy-focused groups. Similarly, 23 KT groups and 19 other groups, including international visitors, engaged with Future Beef demonstration farms.

These visits facilitated valuable knowledge exchange, with international delegates and local advisory in-service training groups attending multiple farm meetings, highlighting the growing impact of Teagasc's demonstration farms in promoting best practices and innovation.

Reducing Methane Emissions in Beef Cattle



Teagasc researchers explored the potential of calcium peroxide (CaO_2) as a dietary supplement to reduce methane emissions in finishing beef cattle. The study found that CaO_2 supplementation, at various levels and formats, reduced methane

emissions by up to 27% without negatively affecting weight gain or feed efficiency. These findings highlight the potential of CaO_2 to support more sustainable beef production while maintaining animal performance.

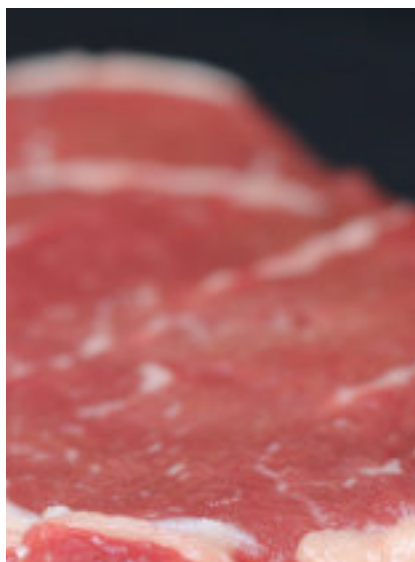
Understanding Summer Scour Syndrome in Dairy Calves



Teagasc researchers investigated Summer Scour Syndrome (SSS), a recently identified condition affecting weaned dairy and dairy-beef calves during their first grazing season in Ireland. The study examined cases on Irish commercial farms and found no evidence that

copper or molybdenum toxicity or ruminal acidosis are primary causes. These findings provide important insights into SSS and lay the groundwork for further research to develop effective prevention and management strategies.

Optimising Grass-Based Finishing in Suckler Beef Systems



Teagasc researchers compared grass-based finishing systems for early-maturing (EM) and late-maturing (LM) bulls in suckler beef systems. EM bulls produced lighter but adequately finished carcasses without supplementation, while LM bulls required supplementation. LM

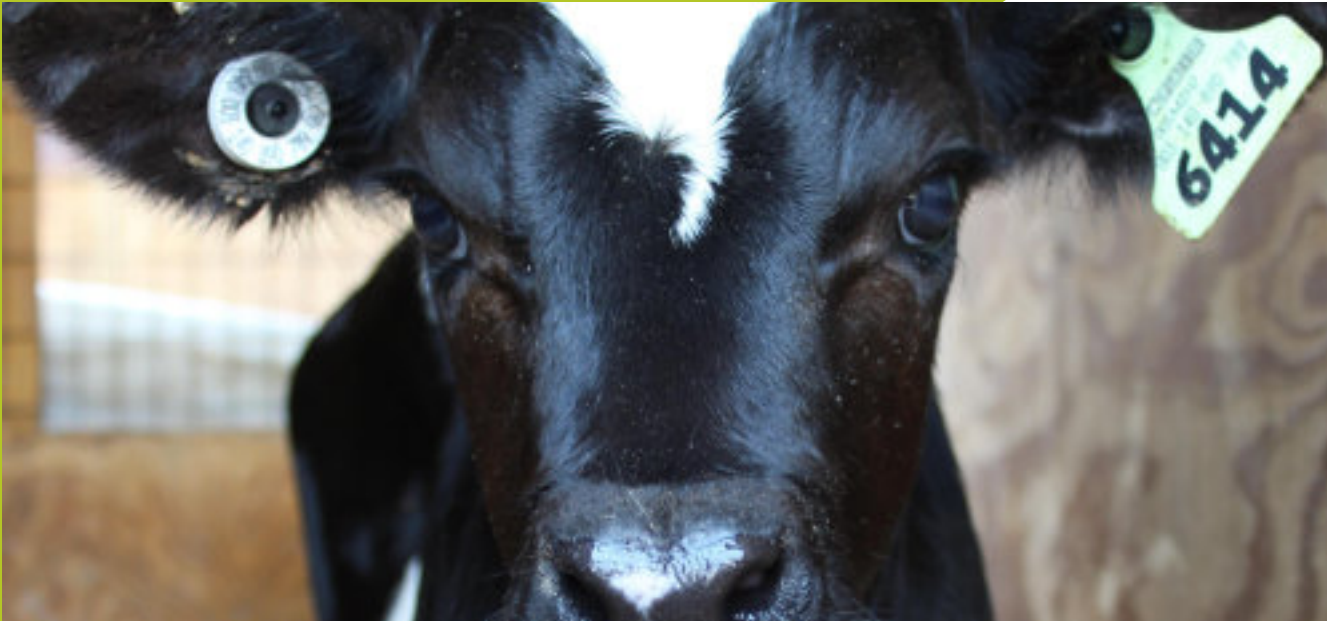
systems were more profitable, with lower greenhouse gas (GHG) intensities and better feed-food ratios. Non-supplemented systems had lower beef output and profitability but higher feed-food efficiency and greater GHG emission intensities than supplemented systems.





Dairy Beef





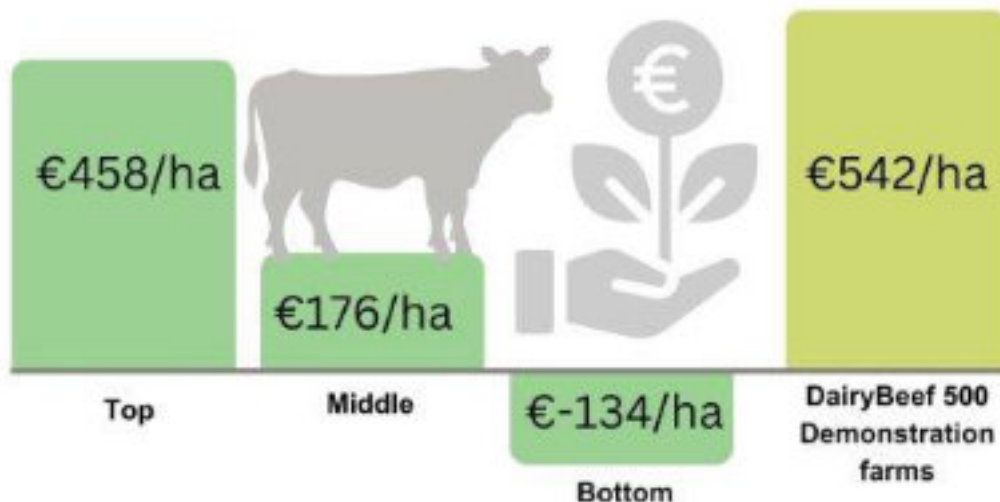
Dairy Beef

In 2023, the average profit on dairy beef farms was €176/hectare (ha). This compares to an average of €542/ha on demonstration farms on the DairyBeef 500 campaign. In 2024, Minister McConalogue launched the Dairy Calf-to-Beef 10 Point Action Plan to increase the sustainability of dairy calf-to-beef systems. Key actions undertaken in 2024 included increased use of sexed semen straws to approximately 300,000, increased proportion of high CBV beef AI straws to 49% used on dairy farms, the launch of the Tipperary Dairy Beef

demonstration farm which is a joint initiative between Dawn Meats, Shinagh Estates and Teagasc, increased number of new entrants in dairy calf-to-beef courses to 47, hosting an international dairy calf-to-beef conference on the 16th and 17th of October and expanding the KT programme to support farmers in adopting best practices in relation to dairy calf-to-beef production. Key stakeholders involved included the Department of Agriculture, Food and Marine, Teagasc, ICBF, Bord Bia and AHI.

Technical Performance - Dairy Beef 2024

Profit of Top, Middle and Bottom cohorts of Dairy Beef farms from the NFS 2023 Dairy Beef Enterprise Factsheet, and also from the DairyBeef 500 Demonstration farms in 2023



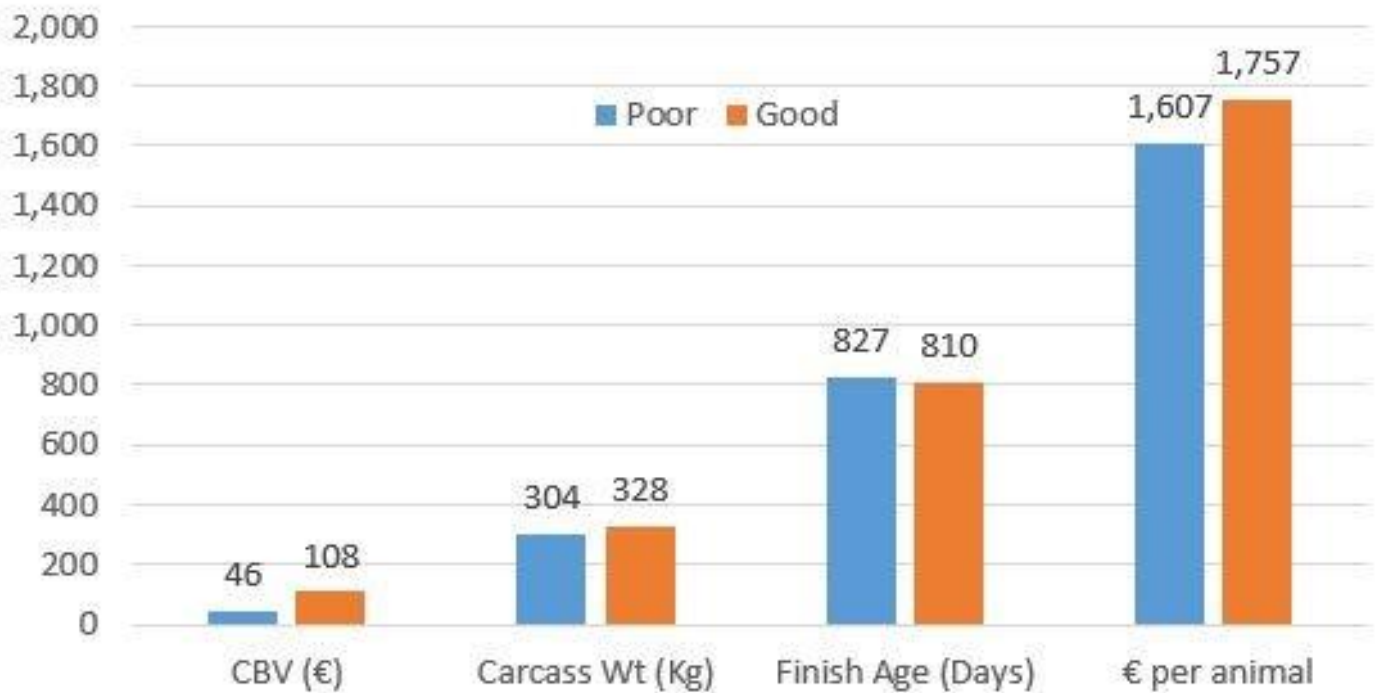
Proportion of slaughtered prime beef cattle derived from the dairy herd in 2012 versus 2024



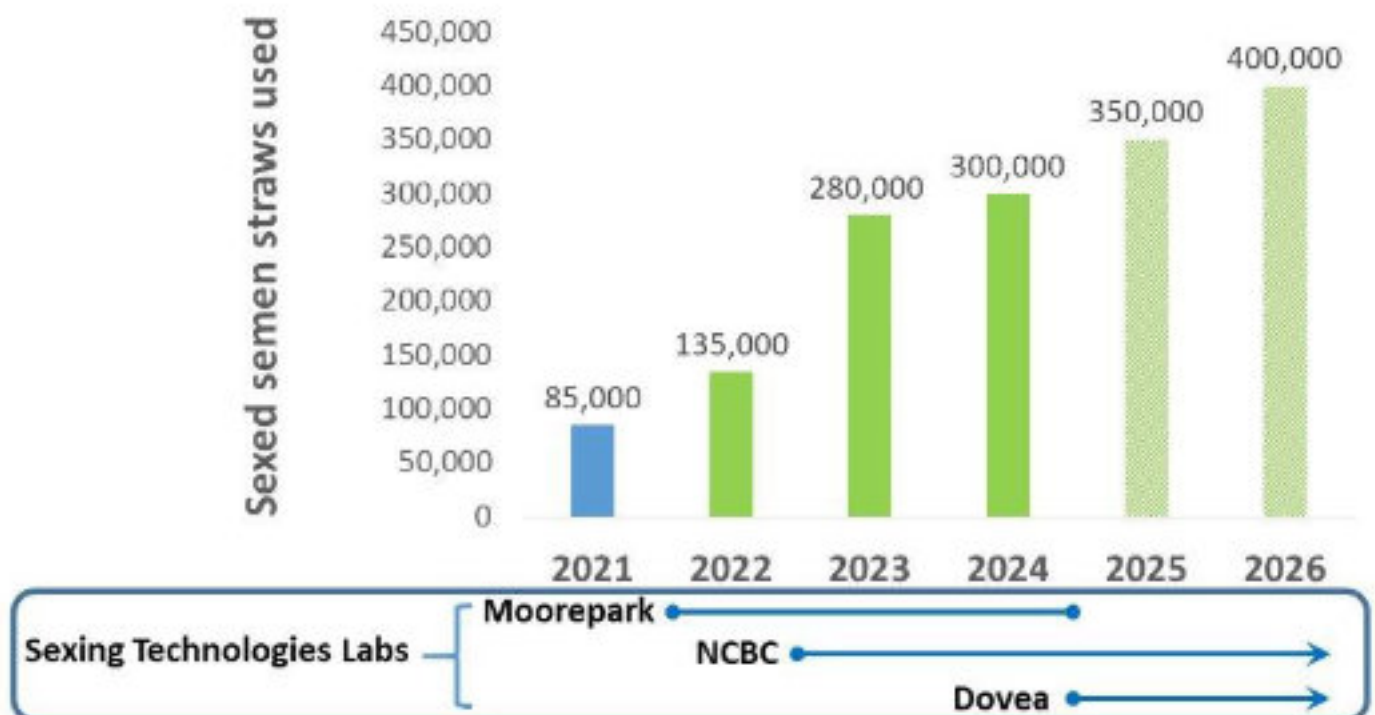
Proportion of dairy births registered to a beef sire in 2018 versus 2023



Slaughter characteristics for Dairy Beef steers with good or poor CBV (ICBF, 2024)



Trends in estimated sexed semen usage



Science-Driven Support Activities

Dairy Calf to Beef Ten-Point Action Plan



Minister McConalogue launched the 'Dairy Calf to Beef 10 Point Action Plan' in support of Food Vision 2030. This plan identified actions that can be undertaken at farm level (on both beef and dairy farms) and at processing level that will improve

calf health and welfare and facilitate greater uptake of dairy calf to beef systems. The key stakeholders included Department of Agriculture Food and Marine, Teagasc, ICBF, Bord Bia and AHI.

Launch of Tipperary Dairy Calf to Beef Demonstration Farm



The Tipperary Dairy Calf to Beef Demonstration farm was launched at an Open Day on the 10th of July. Over 1,500 people attended the event. The demonstration farm is a joint initiative between Dawn Meats, Shinagh Estates and

Teagasc. The Demonstration Farm was established to demonstrate best practice in breeding, rearing and finishing dairy beef animals. The farm consists of 112ha rearing over 300 dairy-beef calves to finish each year.

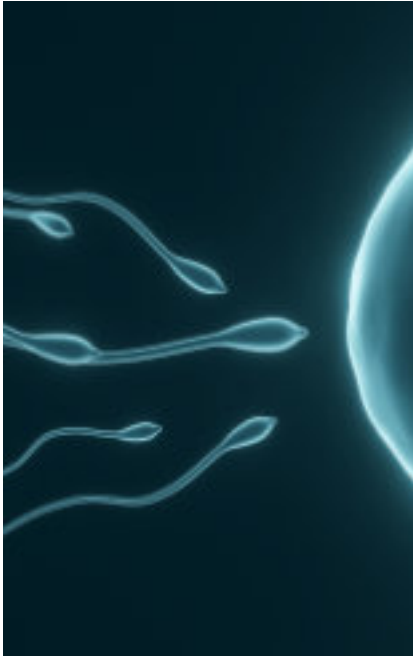
Dairy Calf to Beef International Conference



Teagasc, with the support of the British Society of Animal Science (BSAS) and ABP, hosted an International Technical Conference on the 16th and 17th of October 2024, which focused on the production of beef from the dairy herd. The

conference provided a platform for the dissemination of the latest research from around the world on technological advances in dairy-beef production, and was attended by 300 delegates.

Sexed Semen



The usage of sexed semen straws in dairy herds has increased from approximately 85,000 in 2021 to 300,000 in 2024. It is projected that this will increase to 400,000 by 2026, facilitated by two commercial sexed semen labs now operating in Ireland (NCBC and Dovea Genetics). This increased usage has the potential to reduce the number of

male dairy calves to 252,000 by 2026, a reduction of 167,000 relative to 2021. During the 2023 breeding season, the pregnancy per AI for conventional semen versus sexed semen indicated acceptable performance in both dairy heifers (66% vs. 61%) and dairy cows (57% vs. 50%).

Equipping Farmers Through DairyBeef500 Training



In 2024, 37 farmers successfully completed the *DairyBeef 500 New Entrants Dairy Calf to Beef* course. This was the second cohort of farmers to complete the course. A new cohort of farmers commenced in December 2024, with 47 participants registered to complete the course in August 2025. To accommodate this

demand, two separate courses will be held: one in the northern half of the country with 23 farmers and a second in the southern half of the country with 24 farmers. This growing interest highlights the commitment to improving dairy calf to beef farming practices.





Sheep





Sheep

Overall 2024 was a better year for sheep compared to a particularly challenging 2023 especially when looking at family farm income, which increased by 19% in 2024 relative to 2023. Direct costs as a percentage of output declined from 50% in 2023 to 43% in 2024 driven by an increase in lamb price. While weather was again a major challenge in the early part

of the year, especially around lambing time for many flocks, conditions were much improved in the latter half of the year. The value of sheep meat exports was down marginally (-6%) to €400 million. There was a decline in breeding ewe numbers in 2023 of -3.7% reported in the DAFM 2023 sheep and goat census with a similar decline predicted in 2024.

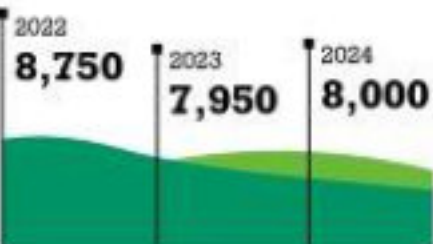
Technical Performance - Sheep 2024

Family Farm Income



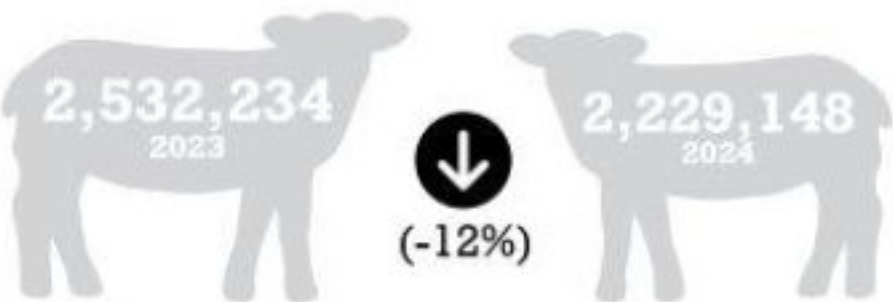
Source: NPS Outlook

Grass production (Kg DM/ha)



Source: FBS Teagasc Better Farms

Throughput of lambs (through Irish meat processors)



Source: Bord Bia

Value of sheepmeat exports



Source: Bord Bia

Direct Inputs as % of Outputs



Source: Bord Bia

C-Footprint



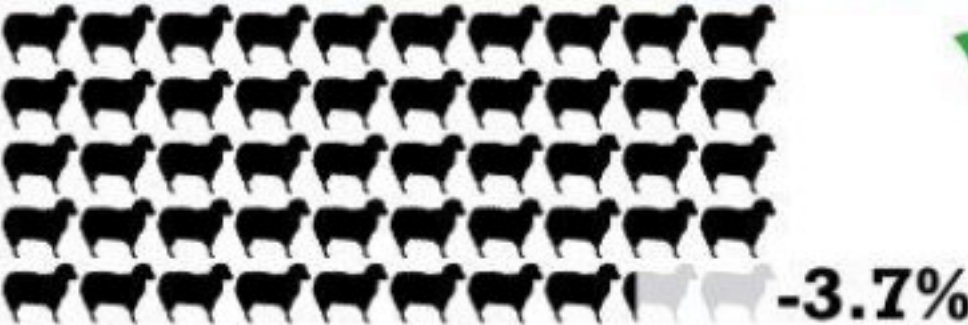
Source: NPS Sustainability Report 2023 IPCC System Boundary

N Balance



Source: NPS Sustainability Report 2023

Drop in ewe numbers



Source: DAFM

Certified Organic



Source: CSO

Science-Driven Support Activities

Teagasc Sheep Conferences 2024



Teagasc hosted three Sheep Conferences in early 2024, drawing over 350 attendees to the National Conferences in Athlone and Donegal in January. These events addressed key topics such as pre-lambing nutrition, farm succession planning, and managing

flock health. In February, the Hill Sheep Conference in Wicklow featured presentations on flock health, hill sheep breeding, biodiversity, and insights from the SUAS EIP project, providing valuable guidance for hill sheep farmers.

Sheep EXPO 2024: A Collaborative Industry Event



Launched in 2024, Sheep EXPO brought together Teagasc, Bord Bia, DAFM, IFJ, and Sheep Ireland to address flock health issues. The one-day event featured a morning conference and workshops for industry stakeholders and veterinarians (190

attendees), followed by on-farm workshops for farmers, students, and stakeholders (230 attendees). A poster session showcased the latest sheep research, fostering knowledge exchange and industry collaboration.

Labour Survey to Inform Policy



The Teagasc sheep team is conducting a large-scale labour survey on sheep farms to assess the level of facilities on sheep farms. The findings and recommendations will be shared with industry stakeholders and

policymakers to help shape future schemes and targeted support measures for sheep farmers, ultimately enhancing the sustainability and safety of the sector.

BETTER Sheep Programme: Disseminating Key Innovations



The Teagasc BETTER Sheep Programme continues to drive improvements in sheep production through regular updates in the Teagasc Sheep Newsletter, Irish Independent, Irish Farmers Journal, and the Ovicast podcast. In 2024, farm walks and workshops focused on

reducing lamb mortality, minimising antibiotic use, combating anti-parasitic resistance, and showcasing grass and clover management. These events, delivered in collaboration with advisory, specialist, and research staff, provided valuable insights to sheep farmers nationwide.

Methane Emissions Across Sheep Life Stages



Teagasc researchers studied methane (CH_4) output across different life stages in sheep, using portable accumulation chambers to measure emissions. The study also examined the relationship between methane output and dry matter intake. These

findings provide valuable data for Ireland's national inventory and inform the marginal abatement cost curve (MACC), helping identify the most effective stages in a sheep's life cycle to target methane mitigation strategies in pasture-based systems.

Improving Sheep Diets with Companion Forages



Teagasc researchers investigated how different diet types affect dry matter intake (DMI) and organic matter digestibility (OMD) in sheep. The study found that incorporating legumes and herbs into perennial ryegrass swards

improves sward quality, leading to higher DMI and more digestible diets during the summer. These findings highlight the potential benefits of binary sward mixtures for enhancing sheep performance in pasture-based systems.

Advancing Parasite Detection in Sheep



Teagasc researchers compared three new image-based diagnostic tools to traditional methods for detecting gastrointestinal nematode infections in sheep. The study revealed variations in accuracy between the traditional and machine-learning-based approaches,

emphasising the need for further refinement of these models. The findings highlight the importance of ongoing training and the development of clear guidelines to validate and improve new diagnostic technologies for effective parasite management in sheep.

Breeding and Performance-Recorded Rams



Engagement among pedigree ram breeders with Sheep Ireland and the LambPlus performance-recording programme continues to increase. The DAFM-funded Sheep Improvement Scheme Ram Task continues to

encourage the use of performance-recorded rams and, for hill sheep, sire-verified genotyped rams on commercial farms. These initiatives aim to enhance genetic improvement and overall productivity in the Irish sheep sector.

Promoting Better Wool Handling



Teagasc partnered with the Irish Wool Council in 2024 to create a leaflet and promotional videos encouraging improved

handling and marketing of wool fleeces. These resources aim to enhance the value and quality of wool in the marketplace.



Pigs





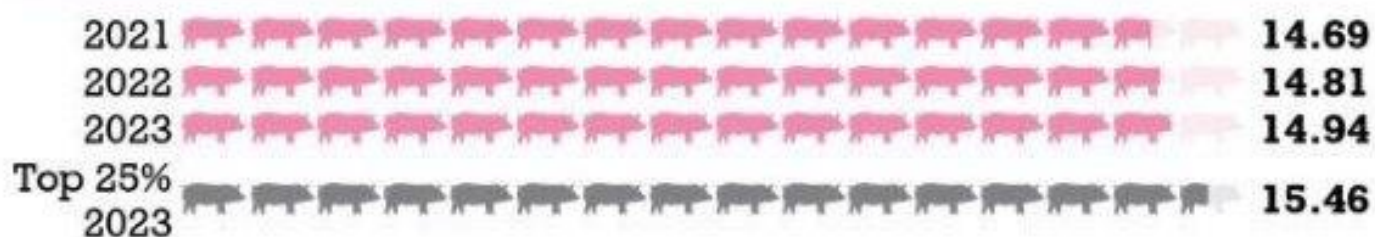
Pigs

In 2024, the Irish pig sector continued its recovery from the pig crisis observed worldwide in 2022. The productivity levels have now recovered, however the national herd is smaller (8.8%) than in 2022. Pig feed costs were more stable and lower in 2024 than the previous two years. Margin over feed increased from 70c to 86c per kg of carcass weight compared to

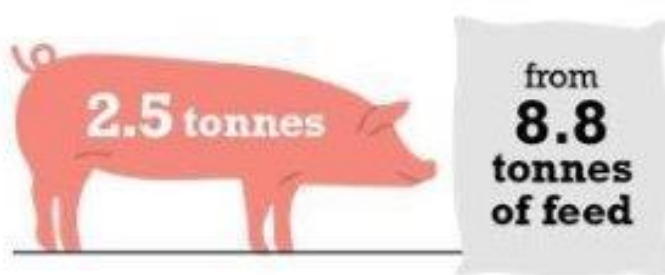
2023. However, non-feed costs continued their upward trends. The sector continues to make progress on health and welfare despite the removal of zinc oxide and the reduction in the use of antibiotics. The biggest challenges for the sector in 2024 were around manure management coupled with challenges around workforce renewal and retention.

Technical Performance - Pigs 2024

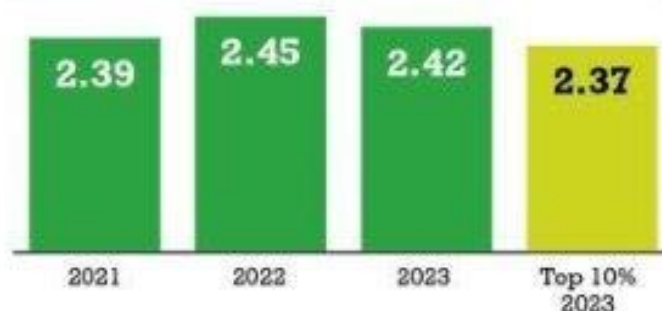
Pigs born alive/litter



Tonnes of Pigmeat/Sow/Year



FCE (weaning to sale)



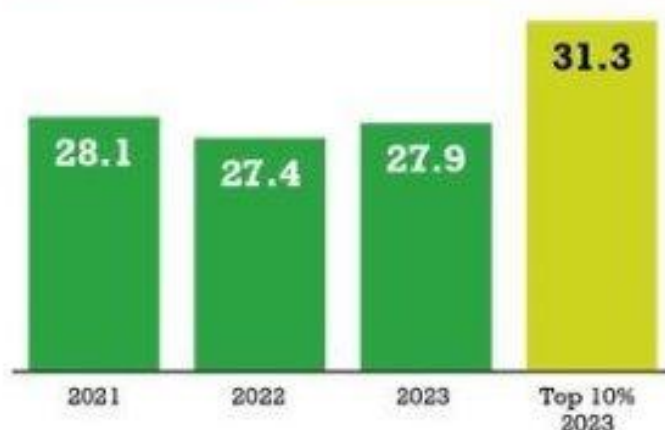
Litters/Sow/Year



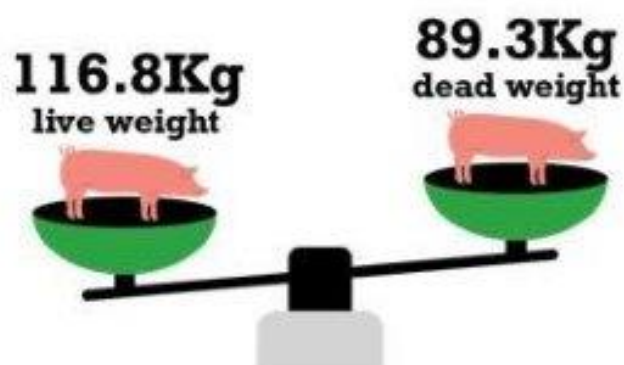
Daily Feed Intake & Live Weight Gain (weaning to sale)



Pigs Produced/Sow/Year



Weight



Sources: Teagasc Profit Monitor

Science-Driven Support Activities

Highlights from the Teagasc 2024 Pig Open Days



The 2024 Teagasc Pig Open Days were held on 22nd May 2024 in Moorepark, Co. Cork, and 24th May 2024 in Ballyhaise, Co. Cavan. Attendees engaged with Teagasc researchers and staff on key topics such as pig health, sustainability,

farrowing management, postweaning care, and nutrition economics. Updates on the Pig Research Facility and Feed Lab further showcased Teagasc's broad research focus.

Highlights from the 30th Annual Pig Farmers' Conference



The 30th Annual Pig Farmers' Conference took place on 22nd October 2024 in Tipperary and 23rd October 2024 in Cavan, with strong attendance from farmers and industry representatives. The event reflected on three decades of progress and featured presentations on

breeding herd performance, feed efficiency, and welfare challenges. International speakers provided insights on geopolitics, nitrogen reduction, and sow management, showcasing innovative research and practical solutions to advance pig production.

Optimising Supplementary Milk Use in Pig Farming



Teagasc researchers investigated the impact of different supplementary feeding strategies on the growth and health of suckling pigs, publishing their findings in a peer reviewed article titled *Effect of Creep Feeding Pelleted Starter Diet, Liquid Milk Replacer, and a Liquid Mixture of Starter Diet and Milk Replacer to Suckling*

Pigs on Their Growth and Medication Usage. As litter sizes grow, sow milk alone often falls short. This research provides critical guidance for farmers on the cost-effectiveness and optimal use of supplementary milk, supporting improved piglet performance and health.

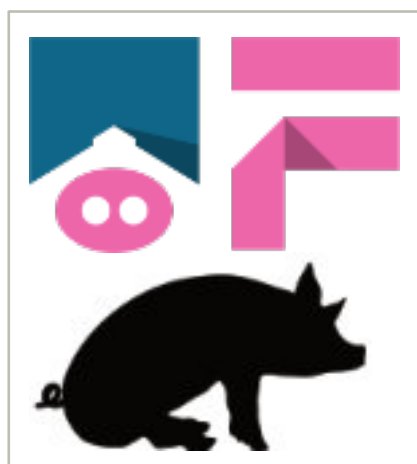
Establishing a Pilot Pig-Feed Quality Control Laboratory



The Teagasc Pig Development Department has set up a pilot pig-feed quality control lab at Moorepark, focused on nutrient analysis of feedstuffs using NIR (Near-Infrared). Its goal is to support research, improve cost competitiveness, and optimise diets. Plans are underway to expand

testing, and ongoing discussions with the Department of Agriculture, Food and the Marine (DAFM) and the Irish Grain and Feed Association (IGFA) aim to explore collaboration and synergies, providing greater assurance of feed ingredient quality in Irish pig diets.

Preparing for the Future of Pig Welfare: The WelFarmers Project



With the EU's focus on animal welfare and pending legislative changes, the Horizon Europe-funded WelFarmers project supports pig farmers in meeting these challenges. Bringing together all stakeholders, it promotes

Good Practices (GPs) in four key areas: the farrowing crate ban, managing undocked tails, space allowance, and pain-free castration. The project aims to deliver practical solutions to help farmers adapt to upcoming regulations.

Tailwards: Advancing Pig Welfare in Ireland



The Teagasc Pig Development Department secured funding for Tailwards, a European Innovation Partnership (EIP) Operational Group, to transition the Irish pig sector to rearing pigs with intact tails. The project involves testing innovative solutions such as slurry management systems, Porcine

Reproductive and Respiratory Syndrome (PRRS) control strategies, and feed quality monitoring. Collaborating with farmers, vets, and advisors, Tailwards focuses on improving pig welfare and sustainability through practical, farmer-led approaches supported by Teagasc, Animal Health Ireland, and the Irish Farmers Association.





Tillage



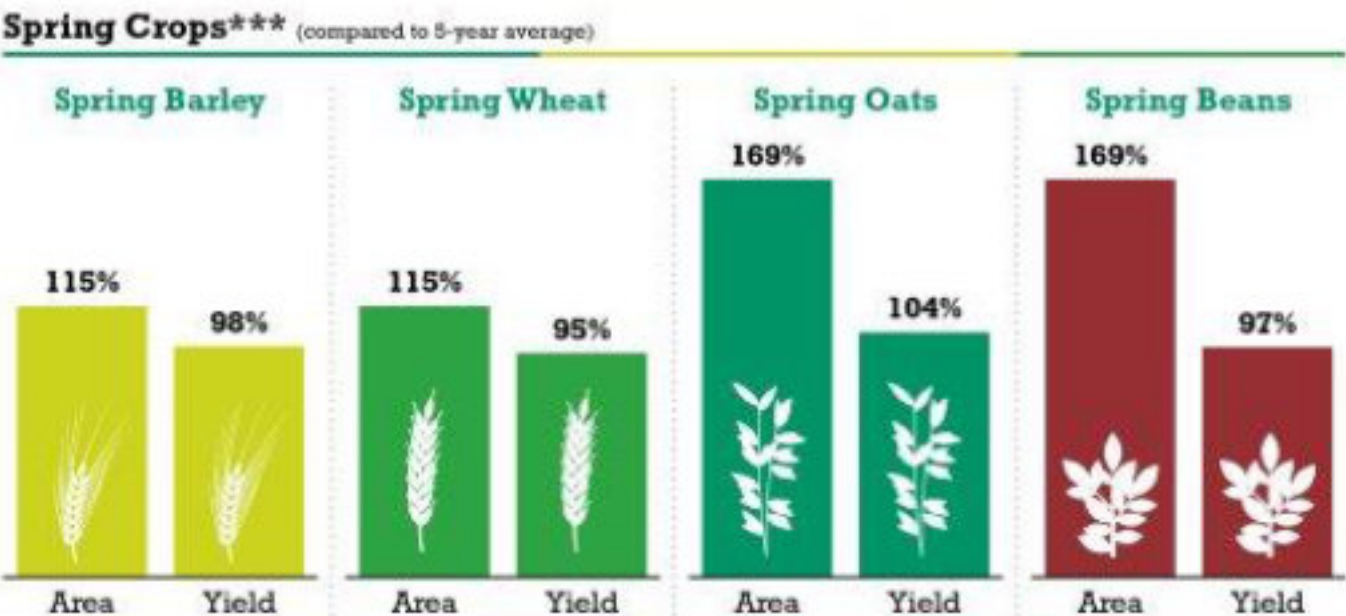
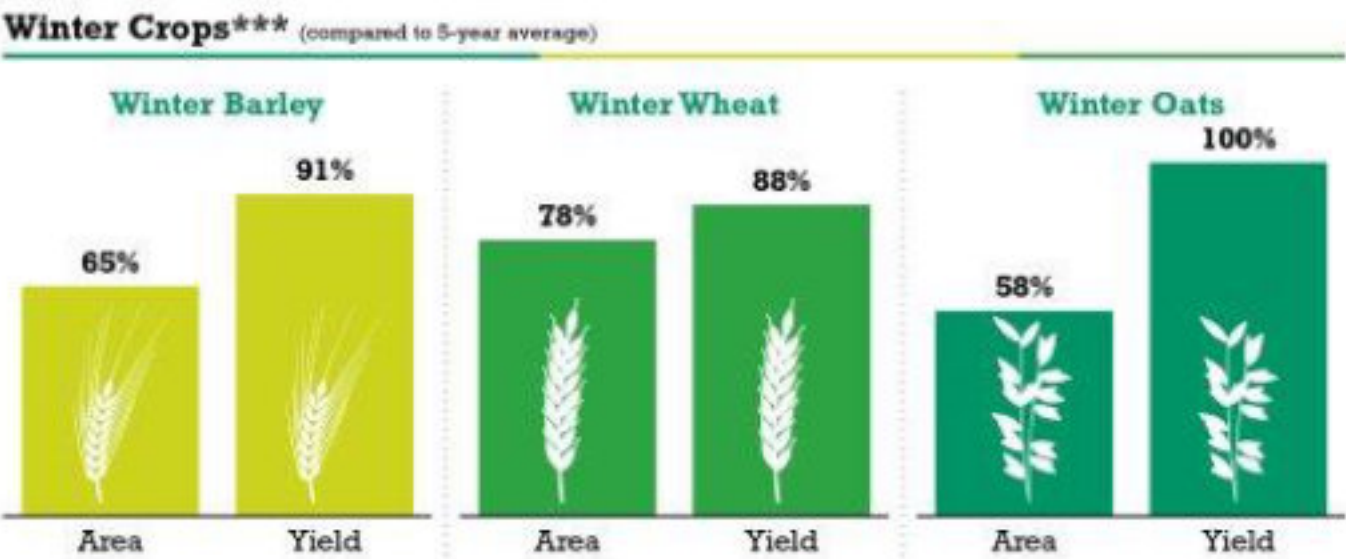


Tillage

In 2024, Irish tillage farmers faced significant challenges, including reduced autumn planting, delayed spring planting, and waterlogged fields. Despite low yield expectations, favourable weather boosted spring crop outcomes, though winter crop yields suffered from waterlogging, disease, and viruses issues. The disrupted crop rotation led to a 50% drop in winter oilseed rape plantings in autumn 2024. However, winter cereal planting are on track, with crops establishing strongly. Teagasc provided critical support through tailored guidance on crop

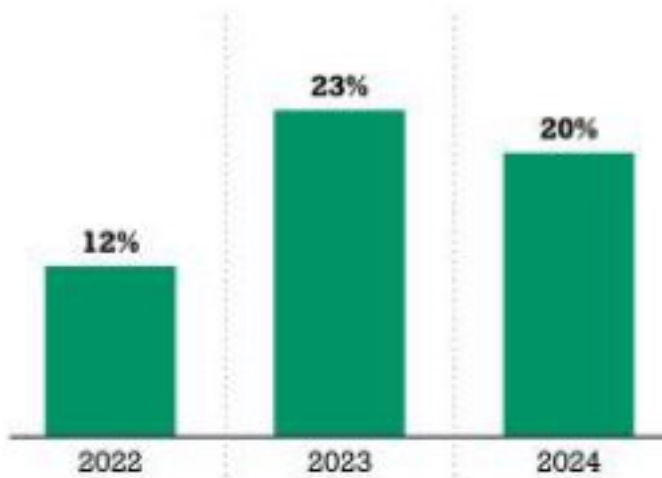
rotation, nitrogen management, and late-planted crops, along with informative events and policy discussions. Despite the improvements, specialist tillage farms incomes remained under pressure. Average net margins hovered close to break-even, with significant variation. While the top-performing one-third of farms earned net margins of approximately €575/ha, the bottom third incurred losses exceeding €700/ha (Outlook-2025). Overall, direct payments and cost reductions were pivotal in mitigating losses and sustaining farm incomes.

Technical Performance - Tillage 2024

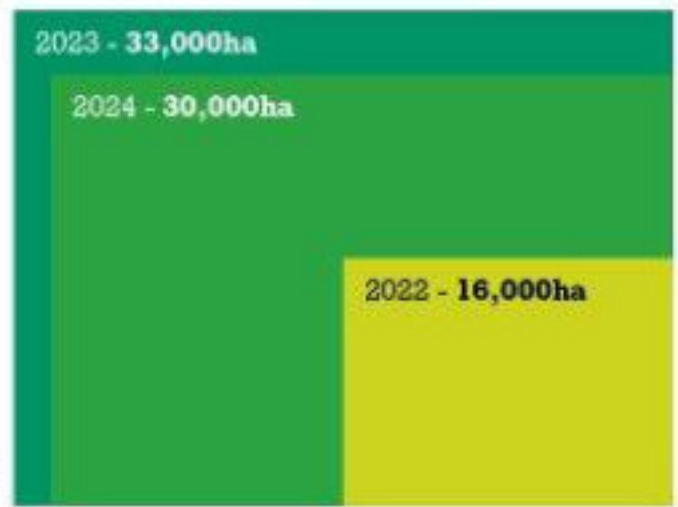


Sources: *NFS, **DAFM, *** Teagasc Harvest Report, **** National Farm Survey

Cover crops sown as a % of the available area for cover crops**



Cover crops planted (ha) est.**



Break crops as % of the total tillage area**



Greenhouse gas emissions* (Specialist tillage farms – tillage only)



Nitrogen balance*

Specialist tillage Farms (no livestock) N balance



Phosphorus balance*

Specialist tillage Farms (no livestock) P balance



Sources: *NFS, **DAFM, *** Teagasc Harvest Report, **** National Farm Survey

Science-Driven Support Activities

Irish Tillage Crops LCA: Showcasing Low Carbon Footprints



The first Irish tillage crops life cycle assessment (LCA) was launched in 2024 which highlighted the low carbon footprint of Irish grain by international

standards. This is largely due to the relatively low fertiliser inputs and high yields of Irish crop production. This work will be further expanded in 2025.

Advances in Teagasc Potato Breeding: Award-Winning and Market-Driven Varieties



The Teagasc Potato breeding programme, in partnership with IPM Ltd, delivered two important varieties to market: (1) The nematode resistant variety 'Buster' has received an international award due to its

exceptional resistance to potato cyst nematode, a pest that can take land out of potato production due to its persistence in the soil (2) Fidelity, which is capturing market demand in the high value crisper market.

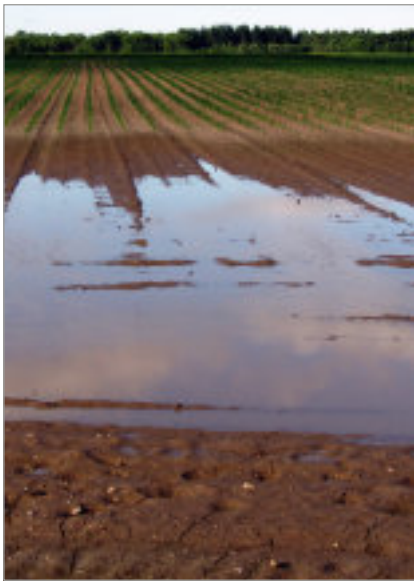
Addressing Soil Compaction and Crop Establishment Challenges



Addressing soil compaction from adverse weather in 2023–2024, Teagasc launched a campaign to improve soil health and crop establishment. Key initiatives included reissuing the Soil Structure ABC guide, promoting the Double

Spade method during farm walks, and hosting a “Healthy Soils” session at the Crop Forum. Multimedia resources like videos, articles, and podcasts ensured farmers received practical guidance on soil assessment and remediation techniques.

Protecting Barley from BYDV: Effective Alternatives to Neonicotinoid Seed Dressing



Barley Yellow Dwarf Virus (BYDV) can significantly impact yield for barley cultivation. A multi-year study completed in 2024, concluded that in the absence of neonicotinoid seed dressing, alternative insecticides still offer protection for winter barley crops against the

aphid vectors of BYDV and associated yield loss. Furthermore, the presence of a pyrethroid resistant aphid (SA3) in Irish populations had no observable impact on field efficacy of the pyrethroid insecticide, lambda-cyhalothrin in trials.

Weather Challenges and Support for Tillage Farmers



Irish tillage farmers faced major challenges in 2024 due to prolonged wet weather, which delayed planting and required strategy changes. Teagasc provided critical support through updated crop margin guides, tailored advice, and events like the

National Tillage Conference. Despite seed shortages, planting levels neared normal, with record spring bean crops. The Tillage Top-Up Scheme and strong straw demand helped mitigate financial impacts during this challenging season.

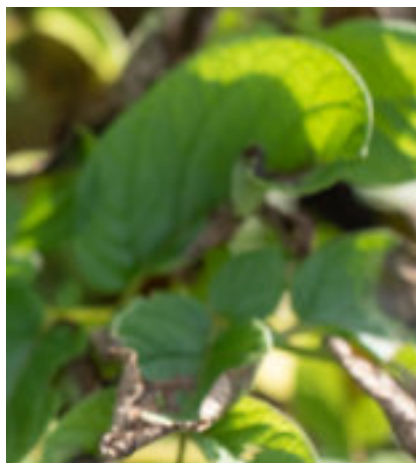
National Tillage Conference



The Teagasc National Tillage conference took place in January 2024 with a new format where there was theatre sessions in the morning and a menu of workshops in the afternoon. There was a particular focus on

coping with the fallout from the winter plantings and planning for the spring. Workshop sessions main topics included: synergies between tillage and the dairy sectors, controlling grass weeds, getting more from protein crops.

Tackling Fungicide Resistance in Potato Blight



In 2023, Teagasc identified the EU_43_A1 strain of potato late blight in Ireland, resistant to key fungicides belonging to the CAAs and OSBPI fungicide groups. To address this threat, Teagasc developed new detection methods and

control strategies, adopting Euroblight's research and Denmark's successful measures. Through workshops, newsletters, and field trials, farmers received tailored advice, improving blight management and crop protection.

Teagasc FBD Environmental Sustainability Tillage Enterprise Award



Tom Barry, a tillage farmer from Co. Cork, and a Teagasc Signpost Programme participant, was crowned the winner of the Teagasc FBD Environmental Sustainability Tillage Enterprise Award and overall winner of the FBD Better Farming Awards.





Horticulture





Horticulture

Horticulture is a sector of diverse crops and production systems however, 2024 was marked with two consistent challenges for the sector, labour and weather. Labour is the largest individual cost in the production of Horticultural crops and the unit cost of labour increased from 12.5% to 24.3% in January 2024, compared to 2023. The significant rainfall in late 2023 continued into 2024, significantly reducing early plantings of the main

field vegetable crops. The reduction in wheat plantings reduced the availability of straw, a key input in mushroom compost production, leading to an 8-9% increase in its cost. Light levels were reported to be 6% less than the 3-year average, which affected both field and protected crop growth. Improving field conditions from the summer onwards were welcome, with favourable growing and harvesting conditions.

Technical Performance - Horticulture 2024

Edible Protected Crops

2022	88.129m	2022 v 2023
2023	84.002m	-4.68 ↓

Field Crops

2022	89.432m	2022 v 2023
2023	95.853m	7.18 ↑

Outdoor Soft Fruit

2022	792,000	2022 v 2023
2023	733,000	-7.45 ↓

Top Fruit - Apples

2022	2023	2022 v 2023
9.489m	8.960m	-5.57 ↓

Amenity Crops

2022	99.695m	2022 v 2023
2023	99.293m	-0.4 ↓

Mushrooms

2022	2023	2022 v 2023
129.889m	136.256m	4.9 ↑

	2022	2023
Total	417.426m	425.097m

Source: DAFM Provisional Estimate of Horticultural Output 2023 (at farm gate)



Science-Driven Support Activities

Rising Horticulture Crop Input Costs in 2024



The 2024 Teagasc Horticulture Crop Input Cost report highlights the ongoing trend of rising input cost inflation in recent years, with a 40% increase in the combined horticultural input costs since the first Teagasc report in 2021. Labour

costs remain the primary driver of increased production costs, accounting for 36.5% to 46.9% of production input costs. Additionally, the unit cost of labour has risen by 12.5% to 24.3%, depending on horticultural sub-sector.

Teagasc Mushroom Automation Seminar Highlights Future Innovations



The Teagasc Mushroom Automation Seminar, held on 11th June 2024 at Teagasc Ashtown, showcased cutting-edge harvesting technologies to address labour challenges in the mushroom industry, where labour accounts for 44% of production costs. Leading automation

companies presented innovative solutions, including robotic grippers, to support sustainable growth. The event emphasised the transformative potential of automation for the sector's future profitability and efficiency.



Advancing Innovation in Irish Apple Production



The inaugural Apple Research Update was held in spring 2024, showcasing the new Apple Research Orchard in Carlow. Key studies on apple fruit quality across 48 varieties grown in Ireland, along with trials on rootstocks, training systems, and planting densities to optimise

yield, fruit quality, and labour efficiency, will be conducted at the Orchard. A core objective of the facility is to provide agronomic and economic data, supporting Teagasc's commitment to science-based solutions for a sustainable and competitive apple industry.

Evaluating Biostimulants for Strawberry Productivity and Disease Management



Multi-year experiments under the Leaf No Waste project, completed in 2024, evaluated silicon-based (Si) biostimulants in protected cropping systems. These trials assessed crop parameters such as cultivar, pesticide-biostimulant combinations, and growing environments to determine the impact of biostimulants on

productivity and fungal disease reduction in strawberry crops. Initial experiments in polytunnel systems indicated some potential for Si-biostimulants to increase yields and reduce disease incidence. However, results were inconsistent and influenced by the crop production structure.



Exploring Alternatives to Peat Casing in Mushroom Production



Teagasc researchers conducted a review on the future of peat as the primary component of casing in the global mushroom sector. The findings were presented at a special industry event during the 2024 International Society for Mushroom Science conference. Additionally,

Teagasc researchers shared results from the Beyond Peat project at the Australian-New Zealand Growers' Conference in Auckland, highlighting data on the hydro-physical properties of wood-based casing alternatives and their impact on crop yield and quality.

Hortimetrics: Evaluating Carbon Calculators for Horticulture



Hortimetrics, a pilot study led by Teagasc, assessed three carbon calculators for the horticulture sector using data from 14 growers across key sub-sectors, including vegetables, soft fruit, nursery stock, cut foliage, and mushrooms. For

many small and medium enterprises, this was their first experience with carbon footprint data collection. The study highlighted the poor fit of existing tools and the need to refine them for a sector with diverse crops and systems.





Forestry



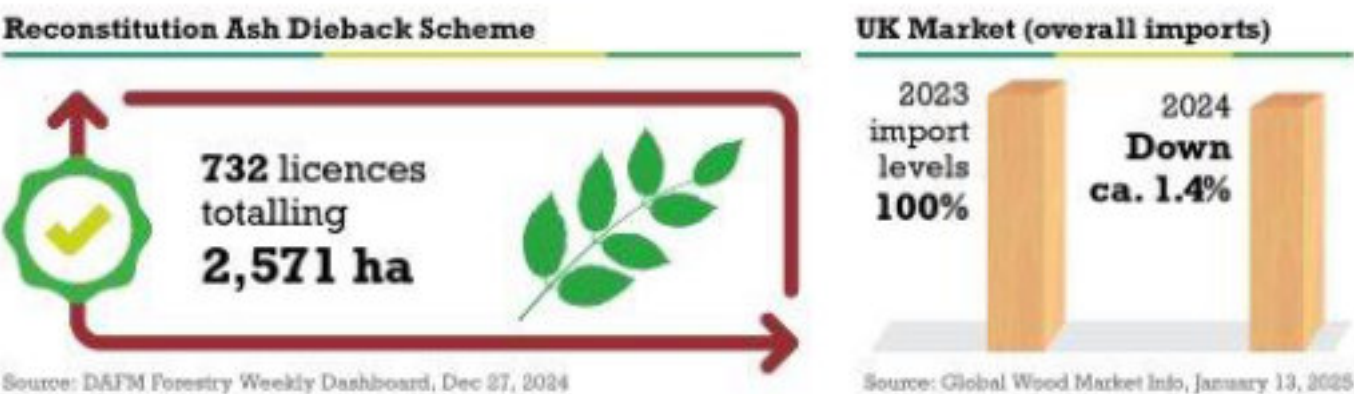
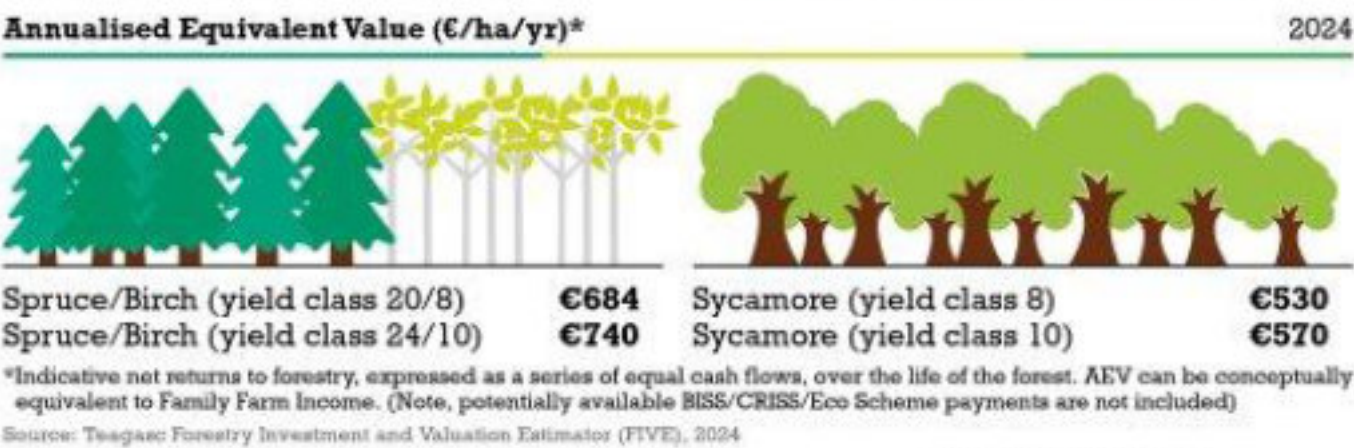


Forestry

The evolving forest sector is increasingly important to rural economies and a highly significant policy driver at national level. In 2024, 1,573 ha of new forests were planted while over 6,000 ha of approvals for new planting were issued by DAFM. The Annualised Equivalent Value (which can be conceptually equivalent to agricultural Family Farm Income) ranged from €570 to €740/ha/year for productive mainly broadleaf and mainly conifer forests, respectively. Over 77 km of new forest roads were constructed while a total of 959 private

felling licences were issued. Timber prices remained steady, while timber harvesting levels were reported as somewhat behind 2023 levels. The Teagasc Forestry Development Department (FDD) continued to expand forestry outreach and engagement in 2024, hosting nine dedicated forestry events, including a series of 70 well-attended forestry support clinics and the popular annual marketing event, “Talking Timber”. The FDD also collaborated in a wide range of regional and national Teagasc enterprise events.

Technical Performance - Forestry 2024



Science-Driven Support Activities

Expanding Forestry Outreach and Engagement in 2024



In 2024, the Teagasc Forestry Development Department hosted nine national forestry events, attracting 2,185 attendees. It also participated in six major national events, including Bloom, BEEF2024, the National Ploughing Championships, and coordinated the

Tullamore Show's forestry village. Strong local and regional engagement continued through client visits, consultations, and a robust media and social media presence, reinforcing Teagasc's commitment to supporting forestry development across Ireland.

Forestry One-to-One Clinics: Supporting Landowners Nationwide



Nearly 500 landowners attended Teagasc's nationwide series of one-to-one forestry clinics in January and February, benefiting from confidential, independent advice from experienced Forestry Advisers. These clinics focused on forest creation opportunities,

with the initial schedule of 36 clinic days expanded to 70 due to high demand. During the campaign, a total proposed planting area of 2,200 hectares was discussed, reflecting strong interest from farmers, landowners, and existing forest owners.

Talking Timber 2024: Preparing Forest Owners for the Market



Talking Timber 2024, held at the Great National Ballykisteen Golf Hotel, Co. Tipperary, drew nearly 300 forest owners eager to enhance their forest management knowledge and prepare for market opportunities. Organised

by Teagasc in collaboration with DAFM and Forest Industries Ireland, the event provided valuable insights on forest product assortments, the value realisable from well managed forests.

ElmAsh Project: Accelerating the Propagation of Dieback-Tolerant Ash



The ElmAsh project is advancing the rapid propagation of ash genotypes tolerant to dieback. In 2024, Teagasc researchers developed a promising protocol capable of producing approximately seven plantlets per explant, greatly improving regeneration efficiency. Testing is underway to

ensure the protocol's effectiveness across diverse tolerant ash lines. This work aims to establish a scalable method for ash regeneration. The project is also collecting healthy Wych elms for future conservation and restoration of this species.

Enhancing Genetic Selection in Sitka Spruce



Teagasc researchers demonstrated that spatial analysis may significantly improve the accuracy of genetic evaluation in Sitka spruce. Using this approach, heritability for diameter at breast height (DBH) increased by 104% when compared to a more traditional, non-spatial approach.

Thinning practices can also affect the response of genetic performance to spatial heterogeneity. This work emphasises the importance of spatial dependence considerations in genetic trial analysis and provides a framework for future genetic research.







Grass Growth

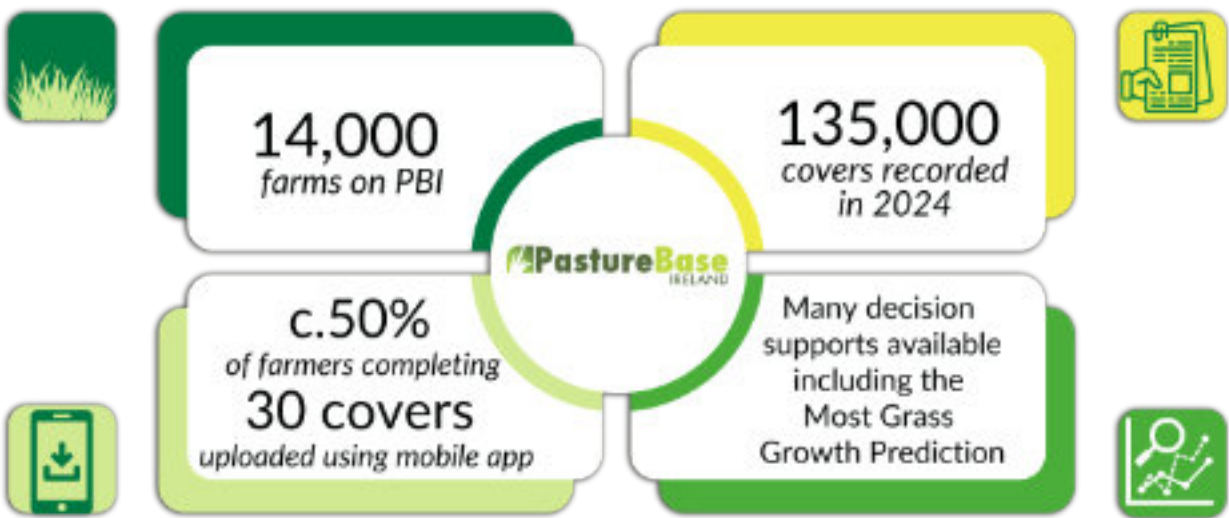


Grass Growth

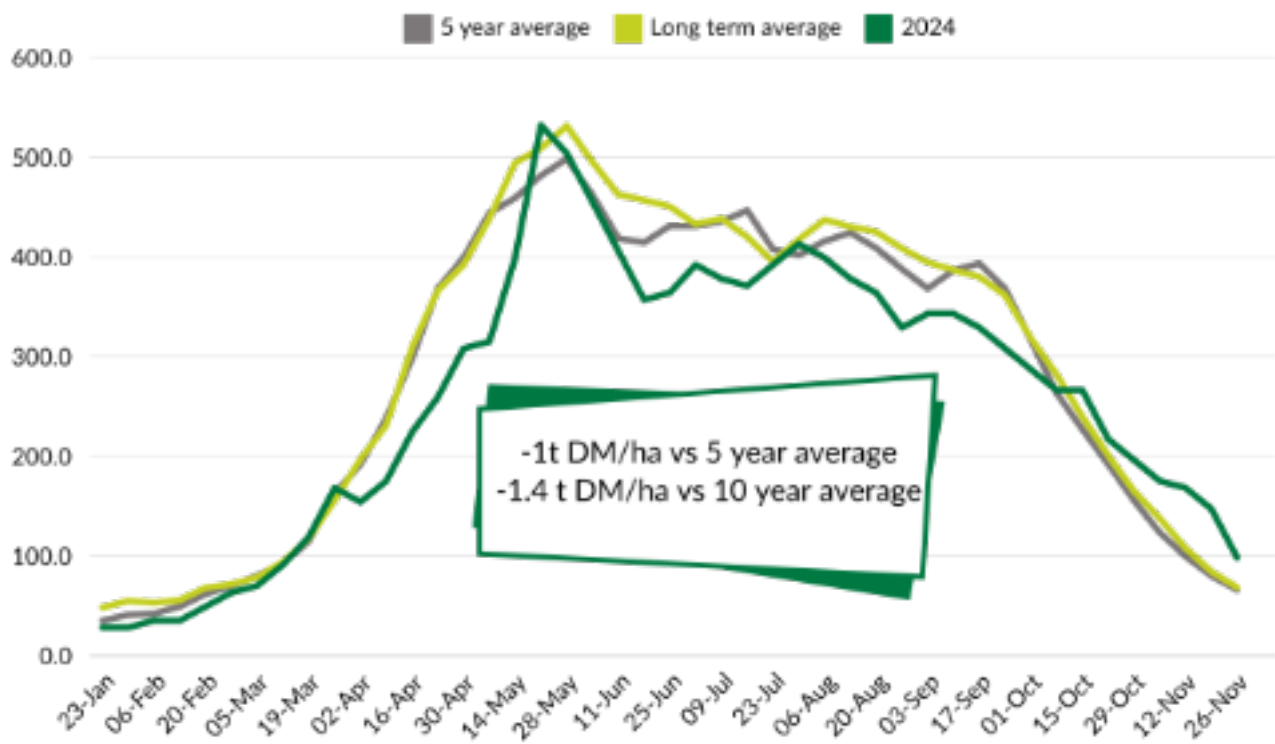
Grass growth in 2024 was 8% below average on farms based on data from PastureBase Ireland, with some recovery in the autumn compensating somewhat for an 11% drop in spring and summer.

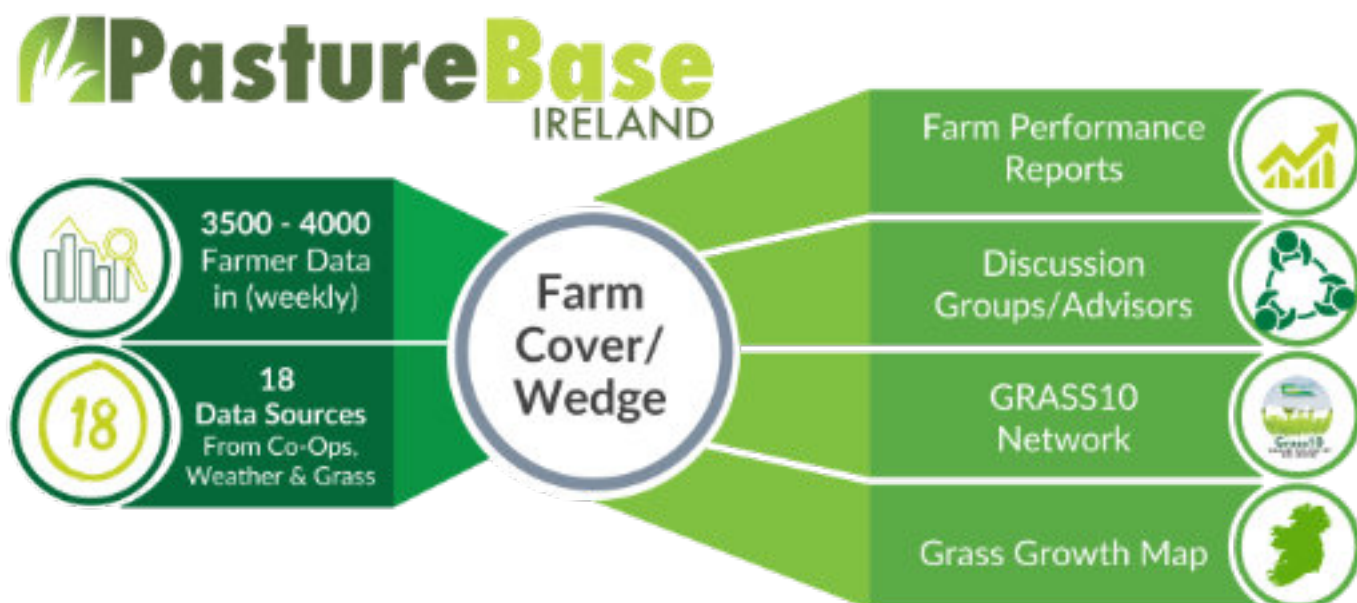
The reduced spring and summer grass growth was associated with low temperatures and high rainfall in spring and low rainfall in the south in summer.

PastureBase Ireland



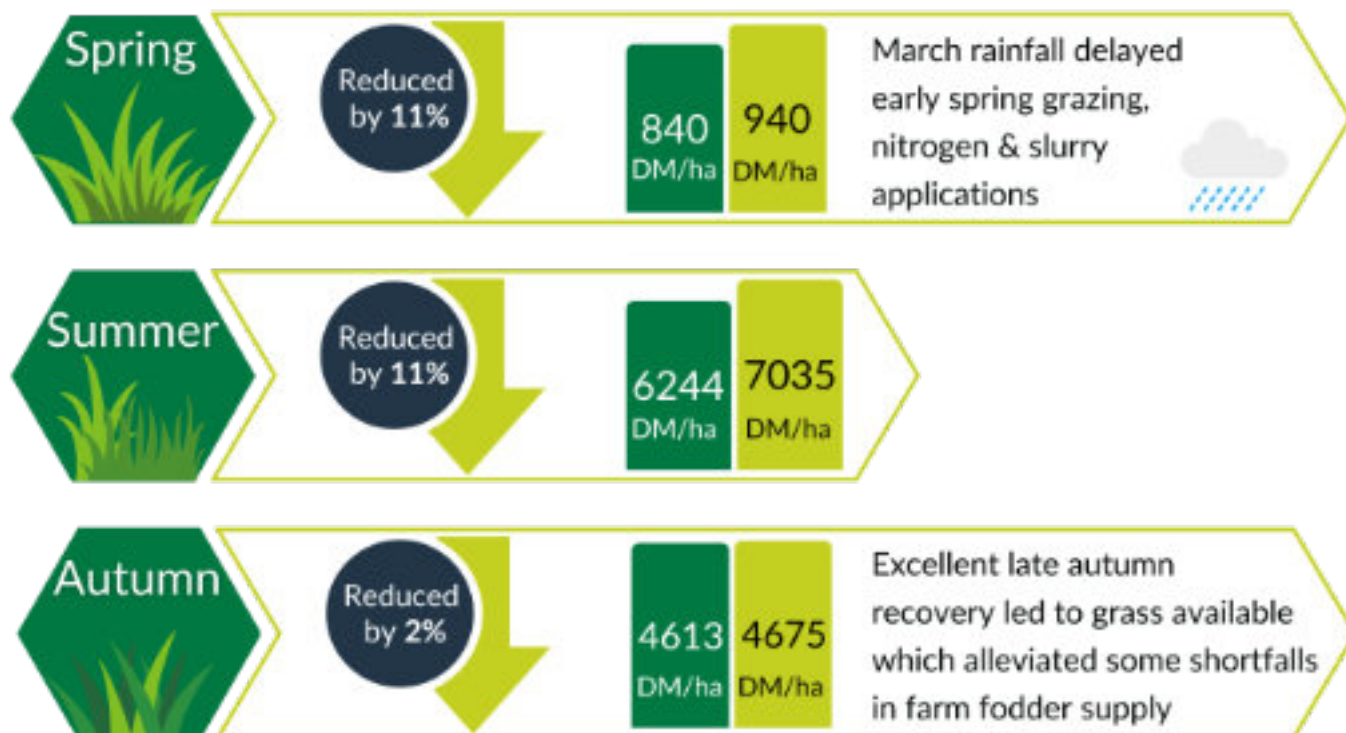
Grass Growth 2024





Milk recording data was supplied to PastureBase by dairy processors Arrabawn, Aurivo, Bandon, Barryroe, Centenary/Thurles, Dairygold, Drinagh, Tirlan, Kerry, Lakeland, Lisavaird, North Cork Creameries, and Tipperary. Additional data was supplied by Met Eireann, FBA Laboratories, JENQUIP and TrueNorth Technologies.

Seasonal Grass Growth



A Changing Climate

(1991-2020 vs 1961-1990)



Warmer

0.7°C
warmer



Wetter

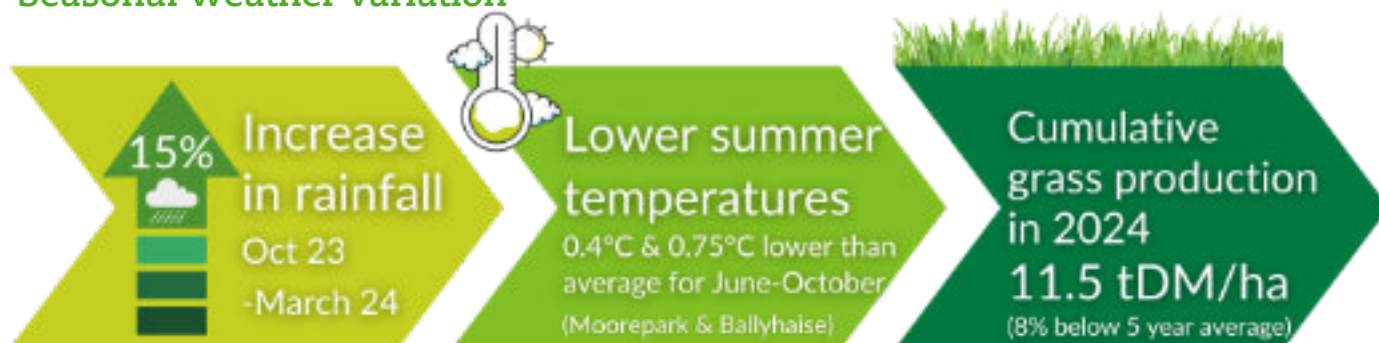
7%
wetter



Infrastructure

More and better
grazing
infrastructure
required

Seasonal Weather Variation



Sustainable Grassland Farmer of the Year



The Sustainable Grassland Farmer of the Year awards are part of the Teagasc Grass10 Campaign, which is supported by the Department of Agriculture, Food and the Marine, Teagasc, AIB, FBD, Grassland Agro and the Irish Farmers Journal. The Grass10 Campaign has

placed an ongoing focus on improving nutrient management and efficiency on farms, and clover establishment and its management. The Overall Winner of the Sustainable Grassland Farmer of the Year award for 2023 is Patrick O'Neill from Co. Longford.



Soil Fertility



Teagasc Soil Fertility Report 2024

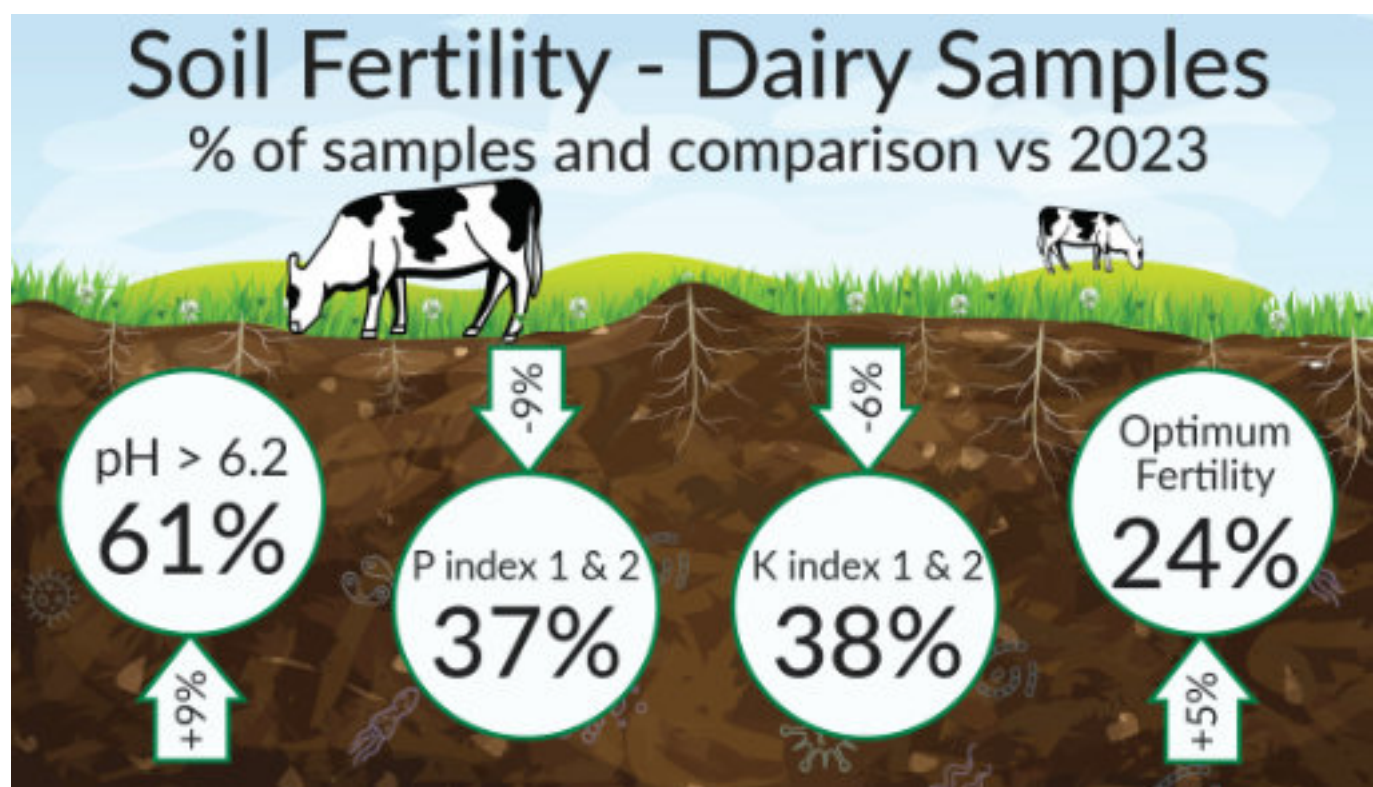
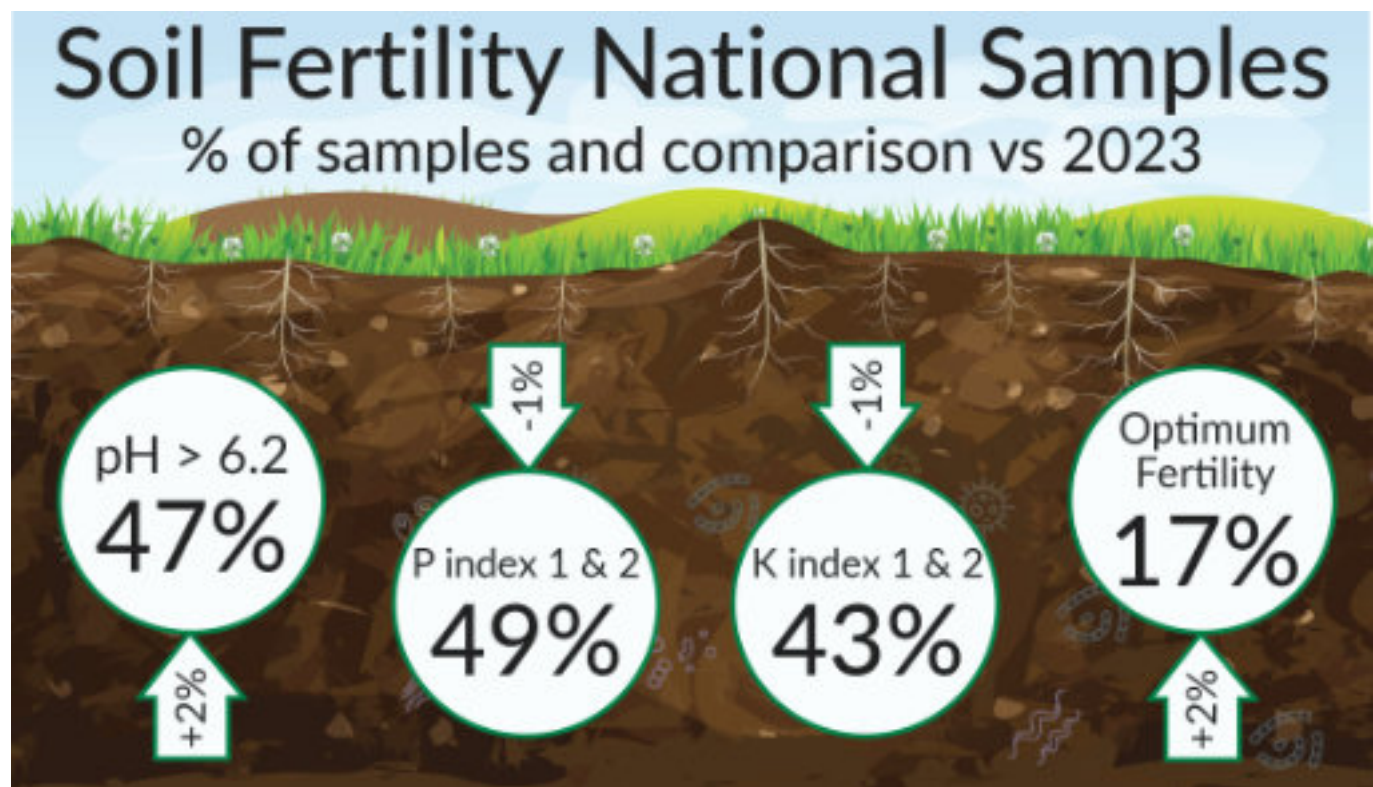


The 2024 Teagasc Soil Fertility Report is based on analysis of 69,218 samples, a decrease of 7.5% on 2023. 52% were optimum for P, 57% were optimum for K, and 47% were optimum for pH. 17% showed optimum fertility, an increase of 2% on 2023. It is important to remember that the target nutrient indices on marginal and biodiverse rich swards are not necessarily the same as

for highly productive systems with high offtakes. P and K fertiliser use dropped by 33% from 2021 to 2023. P dropped by a further 6.6% in 2024, but K usage increased by 7.5%. Nevertheless some soil fertility trends improved: dairy soils optimum for pH, P and K increased from 19 to 24%, and tillage soil at K index 3 and 4 increased from 61% to 67%.

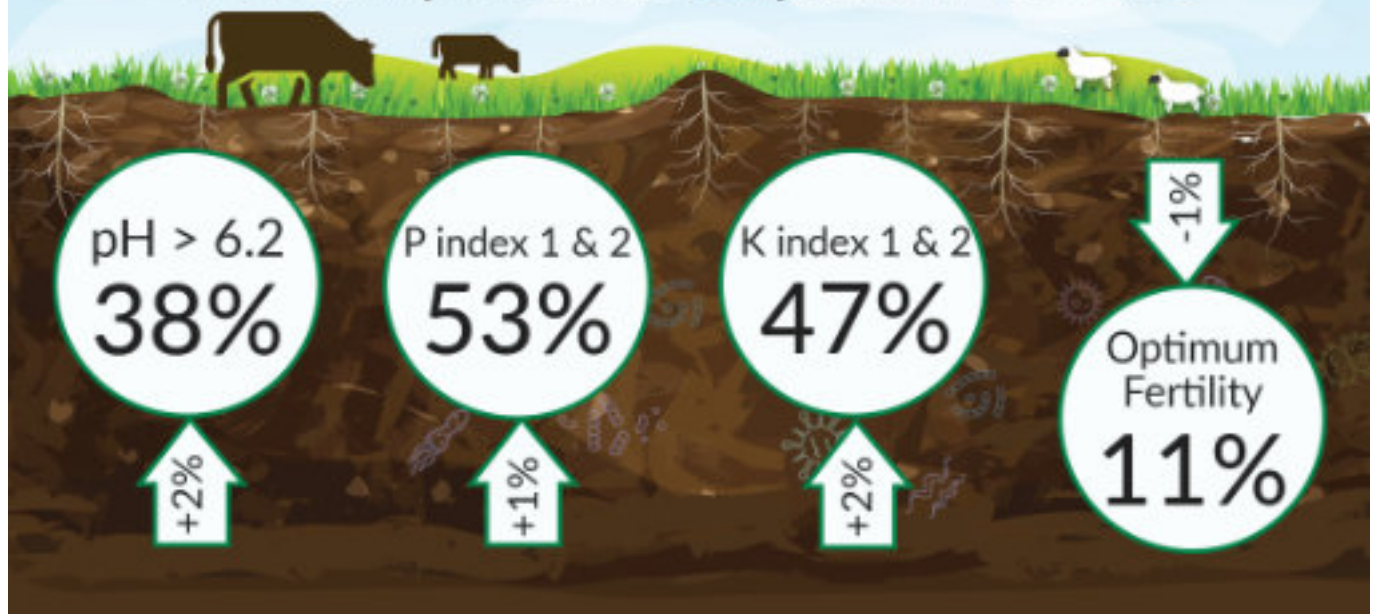


Percentage of Samples in Different Categories



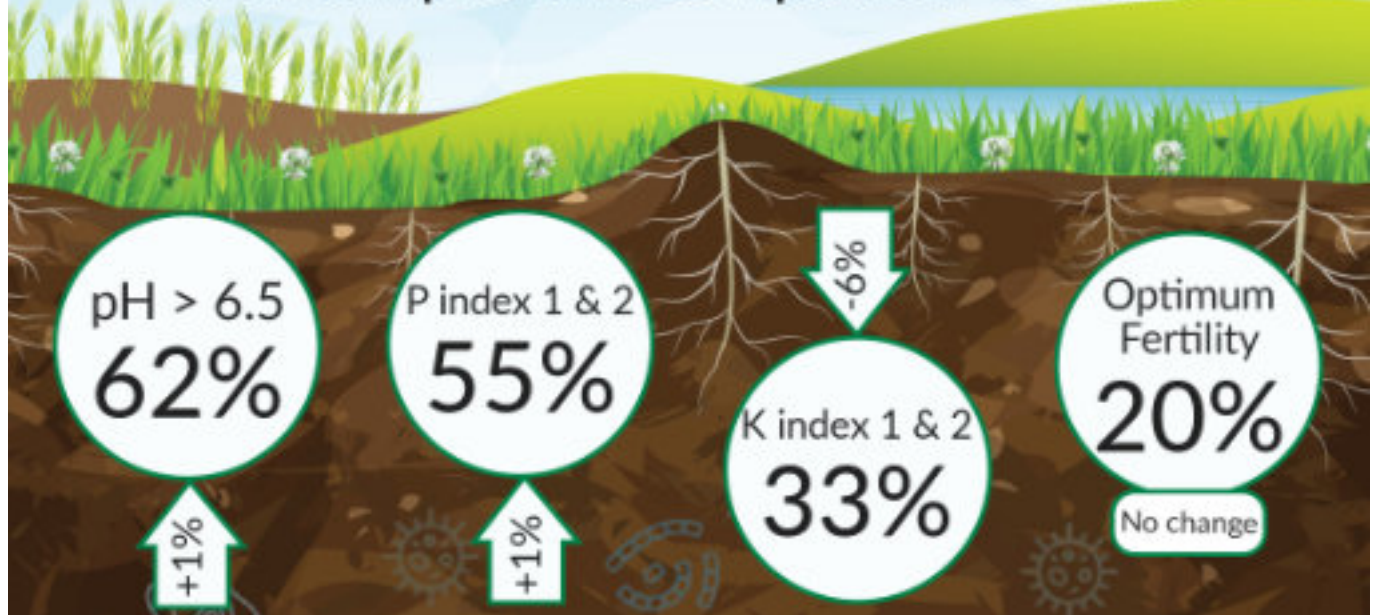
Soil Fertility - Drystock Samples

% of samples and comparison vs 2023



Soil Fertility - Tillage Samples

% of samples and comparison vs 2023





Science-Based Innovation Delivering a Better Food Industry





Science-Based Innovation Delivering a Better Food Industry

In 2024 Teagasc research and innovation delivered significant advancements to the food industry to enhance safety, quality, and sustainability, along with supporting a range of new products and processes through knowledge transfer. Over 150 companies utilised the state of the art Pilot Plant facilities in the National Prepared Consumer food Centre and Moorepark Technology Ltd, while 410 entrepreneurs from across Ireland benefited from training and support to scale their businesses through the Food

Works and Bia Innovator Programmes. Notable successes include providing science based solutions to dairy Co-operatives including Tipperary Co-Op Ltd to enable expansion into new value-added product categories and Cork-based Ocras, which launched a range of texture-modified foods to enhance the quality of life for individuals with dysphagia demonstrating the transformative impact of Teagasc's collaborative research and innovation on the Irish food industry.

Teagasc's Research and Innovation delivers advancements in food safety, quality, and sustainability for the dairy and meat processing sectors. With cutting-edge facilities and expertise in Moorepark and Ashtown, Teagasc

researchers provide foresights to support product innovation, enhance efficiency, and foster collaboration through initiatives like Enterprise Ireland funded Meat Technology Ireland and the Dairy Processing Technology Centre.

DAIRY INDUSTRY

26 Innovation Projects

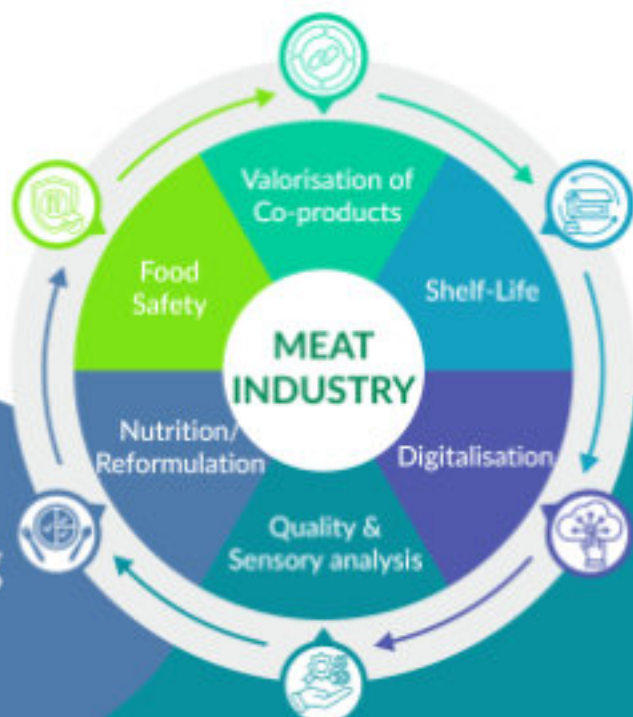
9 Ireland's milk processing co-ops



MEAT INDUSTRY

14 Innovation Projects

7 Meat Processing Companies



In 2024, Teagasc strengthened industry engagement through the specialist facilities and infrastructure in Moorepark and Ashtown Research Centres to support innovation in the Irish food and drink sector. Key facilities include the National Food Innovation Hub and

Moorepark Technology Ltd., driving advancements in sustainable food processing, and the National Prepared Consumer Food Centre, Food Works programme and BIA Innovator Campus, fostering product development, scaling, and entrepreneurship.

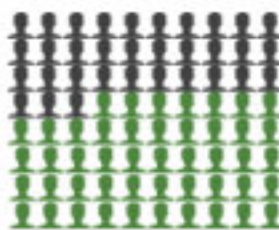


National Prepared Consumer Food Centre



93

Businesses
Supported



67%

Repeat Business



440m²

Pilot plant for prepared
consumer foods

npcfc National
Prepared Consumer
Food Centre



Moorepark Technology Limited



5,000m²

Pilot plant for prototyping ingredients & products

77



Projects
undertaken



Food Works

Feeding Ambition & Innovation

BORD BIA

Enterprise
Ireland

Food Hub

Supporting Entrepreneurship
for Irish food and
drink start-ups



37
applicants



10
participants

67%
female founders



80%
New food
products



20%
Food tech
innovation



Enhancing the Adoption of Knowledge and Technology by Industry

High-Quality Fat-Filled Milk Powders



In 2024, Teagasc's collaboration with Tipperary Co-Op, supported by the Dairy Processing Technology Centre, enabled the successful production of high-quality fat-filled milk powders (FFMP) for

challenging applications like tea and coffee. Advanced analysis resolved critical quality issues, positioning FFMP as a key export product, enhancing Tipperary's capabilities and market confidence.

Enhancing the Quality of Life Through Specially Formulated Foods



In 2024, Cork based Ocras launched a range of texture-modified foods for individuals with dysphagia, supported by Teagasc's National Prepared Consumer Food Centre. Securing HSE and care home contracts and

pursuing expansion to the UK, Ocras' innovative products improve quality of life while promoting sustainability through reduced food waste and advanced packaging design.

Innovation Partnerships with Industry



In 2024, Teagasc secured €2.11 million in Enterprise Ireland grants and €768K in industry cash for seven Innovation Partnership projects. Highlights include a plant fractionation project, advancing plant-based

ingredient production, supported by €1 million in capital funding. These achievements demonstrate Teagasc's leadership in fostering impactful industry collaborations and licensable IP.

Novel Variety “Fidelity” Teagasc / IPM Potato Group Ltd



Fidelity is the first potato variety from the Teagasc/ IPM Potato Breeding Programme collaboration which is suitable for crisp production. Due to its suitable field, storage and processing characteristics, Fidelity, grown by Irish potato growers, will be processed by Irish crisp factories in the 2024/25

manufacturing season. The variety is also being rolled out by IPM in the UK, continental Europe and beyond. Fidelity is enjoying a period of high demand from growers and processors as it contributes to sustainability through high yields, reduced losses, and greater factory efficiency.

Sustainable Packaging Solutions



In 2024, Teagasc’s Sustainable Processing and Packaging Group achieved breakthroughs in sustainable packaging, securing Enterprise Ireland Feasibility funding and Teagasc START Fund

grants. These solutions enable food processors to extend food shelf life, and utilise reusable packaging leading to advances in extending the shelf life of strawberries and basil by 1.8 and 2 times respectively.

Real-Time Detection of Subclinical Mastitis



The Dairymaster-VistaMilk-Teagasc collaboration has made significant strides in leveraging machine learning for real-time detection of subclinical mastitis, an issue that costs the dairy sector millions annually. With a

second project planned for 2025, this work exemplifies the impact of collaborative research in addressing industry challenges, improving animal health, and advancing Ireland’s reputation in agri-tech innovation.

Contact details:

Teagasc

Head Office

Oak Park, Carlow, Ireland

Tel: +353 (0) 59 9170200

Fax: +353 (0) 59 9182097

Email: info@teagasc.ie

www.teagasc.ie