

2023

Annual Report & Financial Statements





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



Being respectful to each other, clients, students, collaborators, stakeholders, and the public at large is a given.



Being valued, supported and empowered.



Having empathy, and ensuring everyone is being actively listened to.



Fostering trust and collaboration, building strong relationships and enhancing our performance.



Promoting health and well-being, and encouraging people to disconnect.



Striving for EXCELLENCE

We endeavor to consistently deliver excellence & value for money



Delivering high standard quality independent services.



Encouraging creativity, innovation and continuous improvement.



Adopting a culture of support and working together.



Recognising the value and contribution of others.



Challenging ourselves and others to excel.



Acting with INTEGRITY

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



Being transparent, accountable, conscientious and answerable for our decisions.



Being ethical and fostering an environment of transparency and trust.



Providing a safe space for everybody to constructively express their thoughts and concerns within and outside the organisation.



Questioning, challenging and evaluating our actions to provide robust solutions that positively impact society.



Promoting the common good for the welfare and benefit of all.

Introduction

The 2023 Annual Report is built around the goals outlined in the Teagasc Statement of Strategy. Examples of key achievements and developments for the Research, Knowledge Transfer and Operations Directorates are described in the context of these goals.

Contents

Introduction	3
Chairman's Statement	4
Report of the Director	7
Authority Members	11
Senior Management	12
Organisational Chart	13
Office Locations	14
Goal 1 - To support improvements in farmers' living standards and well-being	15
Goal 2 - To enhance the production and processing of safe, nutritious and flavoursome foods in line with sustainable circular bioeconomy principles	41
Goal 3 - To provide science-based evidence and technologies to enable Ireland meet commitments in regard to gaseous emissions, water quality and biodiversity	47
Goal 4 - To ensure, through science-based innovation, healthier soils, animals and people	55
Goal 5 - To constantly improve organisational excellence and efficiency in the delivery of our services	59
Consolidated Financial Statements	69

Mission

To provide scientific leadership and support to Irish farmers and food companies in achieving a sustainable food system.

A sustainable food system (SFS) is a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.

Vision

For Teagasc to be a globally recognised leader in developing innovative science based solutions for the sustainable transformation of our land resources into products and services for the benefit of society. Teagasc is registered as a charity, under Section 40 of the Charities Act 2009. Registered Charity Number: 20022754.

Chairman's Statement



Teagasc Chairman Liam Herlihy

After a very difficult year in terms of weather, farm gate prices and farm incomes, in many ways 2023 ended as a year of important celebrations for Teagasc. In October we held a conference to mark 50 years of Ireland's membership of the European Union which brought huge social, economic and cultural changes, and which had huge positive effects on Irish agriculture resulting in a sector which has modernised, mechanised and specialised. We were delighted to have as keynote speakers Mairead McGuinness, European Commissioner for Financial Stability, Financial Services and Capital Markets; Charlie McConalogue T.D. Minister for Agriculture, Food and the Marine and Marc Fesneau, the French Minister for Agriculture. This was followed in November by the 60th Anniversary Special Issue of the Irish Journal of Agricultural and Food Research (Volume 61, Issue 1) which celebrated 60 years of academic publishing in Teagasc. Then in December we marked the celebration of 20 years of scientific excellence and impact by APC Microbiome Ireland, a world leading SFI Research Centre for which Teagasc is proud to be a Host Institution alongside UCC.

Excellence in Science

The importance of Teagasc's role and the contribution of its scientific staff to a major SFI centre such as APC Microbiome deserves to be celebrated. The growing economic impact of APC Microbiome Ireland is now calculated at €73.7m annually, up from €65m five years ago. APC carries out pioneering microbiome research and has produced more than 3,000 peer-reviewed scientific publications which has led to advancements in tackling some of the most pressing societal challenges of our time including antimicrobial resistance and the threat of superbugs, the burden of chronic diseases, obesity and malnutrition, mental health, and healthy ageing. Therefore, it was no surprise when two Teagasc Professors, Professor Paul Cotter and Professor Catherine Stanton, of Teagasc's Food Biosciences Department who are both Principal

Investigators at APC Microbiome Ireland were named on the 2023 Clarivate list of Highly Cited Researchers. These are scientists which rank in the top 1% by citations for their field(s) and publication year in the Web of Science over the past decade. This was a wonderful accolade which was also achieved by their colleague Professor Brijesh Tiwari, Principal Research Officer, Food Chemistry and Technology Department who is also a Principal Investigator at BiOrbic – SFI Bioeconomy Research Centre.

Sharing the Knowledge

A personal highlight of 2023 was the excellent Moorepark Open Day which had the prescient theme of 'Securing a Sustainable Future'. The huge attendance on the day was treated to top class presentations from Teagasc's researchers and advisors on strategies to increase all aspects of sustainability (social, environmental and economic), profitability, pasture management and nutrient use efficiency, the Signpost programme, the Dairy Beef 500 programme and dairy cow breeding, Health and Safety, and people in the dairy industry. Attendees at Moorepark had the opportunity to visit interactive areas for skills development, discussion on the Nitrates Directive, managing farm costs, an international perspective on policy, challenges and solutions, and infrastructure on the farm. This truly was a 'Teagasc Together' event and I take this opportunity to congratulate all the Teagasc staff who made the event such a wonderful success.

Planting the Acorns!

I strongly believe developing the future talent to serve our industry is one of the most important missions of Teagasc. The launch of the new land based apprenticeships in 2023 was a major milestone in the further development of Teagasc's education programmes to meet learner needs within our sector. The work of education staff throughout the organisation to bring these innovative programmes to fruition within a short period of time was a considerable achievement. The feedback from across the industry is positive with strong demand for places which is very pleasing and gives great confidence in the future for our sector.

Advisory and Farm Families Working in Partnership

Teagasc's advisory service had the dual challenges in 2023 of both supporting the implementation of Teagasc's Climate Action Strategy while also ensuring a smooth transition to new schemes in CAP 2023-2027 for our farmer clients. The advisory service recruited 9,900 farmers into the Signpost Advisory Programme in the June to December period which was a remarkable achievement. In tandem over forty four thousand BISS applications were submitted



Pictured from (L to R); Professor Frank O'Mara, Teagasc Director; Deirdre Ryan, Director of Origin Green, Bord Bia; Charlie McConalogue T.D. Minister for Agriculture, Food, and the Marine; Suzanne Campbell, Panel Facilitator and author and food/farming journalist; and Liam Herlihy, Chair of Teagasc Authority.

on behalf of clients. The dedication and commitment of Teagasc advisors to farm families is deep within the Teagasc DNA.

A Challenging Year for Farming

Certainly, in 2023 farm families had to contend with both challenging weather and income issues. Teagasc advisors were very active in supporting farmers coping with one of the wettest years since 1941 which saw flooding in many parts of the country, especially during the second half of the year. In 2023 there were significant drops in some farm output prices, especially for milk and cereals. Dairy and tillage farms saw the most significant drop in average family farm income in 2023 with incomes 60% to 70% lower than the record income levels achieved in 2022. The prices for milk and cereal crops were both down by close to 30%. Lamb prices were marginally lower in 2023 than in 2022. The extent of the decline in tillage farm income was farm-specific, with many farms seeing reductions of 60% to 70%. Support payments on tillage farms helped to buffer the drop in income associated with lower tillage margins. By contrast, there were modest price increases for weanlings and finished cattle. As mentioned, weather conditions created difficulties for tillage farmers at various points in the season, leading to lower yields in 2023 compared to 2022.

Cattle rearing farms experienced a drop in income, which is a particular concern given that the system has the lowest income of any of the main agricultural activities in Ireland.

Weanling prices were up, but production costs remained high. The introduction of the Suckler Carbon Efficiency Programme (SCEP), National Beef Welfare Scheme (NBWS), and payments from participation in the Agri-Climate Rural Environment Scheme (ACRES) provided important support to incomes for farms in this system. Cattle other (mainly finisher) farms also experienced a drop in incomes in 2023, with higher cattle prices being offset by a drop in the volume of cattle slaughterings. Similarly, there was a drop in sheep farm incomes in 2023 compared to the previous year.

Always Getting Better

I am delighted to report that Teagasc continues to conduct its operations in as sustainable a manner as possible. LED lighting was completed in five Centres/Colleges and PV rolled out in 10 other locations with the implementation of Teagasc's Energy Strategy proceeding at pace. The month of June is designated 'Teagasc Diversity and Inclusion month' and in 2023 there were over 20 activities with the aim of staff improving their understanding of why diversity and inclusion is important in the workplace, and also to support and embrace the diversity of colleagues. In congratulating those involved in this important area I am also pleased to report for the seventh year running Teagasc has had a reduction in our gender pay gap which was 11% down from 17% in 2017, the good work continues.

Dr Noel Cawley – An Appreciation Teagasc Authority

It was with great sadness that we learned of the passing of my immediate predecessor as Teagasc Chairman Dr Noel Cawley. Noel was a person of the highest integrity, who made a lifetime's contribution to farming and the agriculture sector in Ireland, leaving a lasting legacy through his role as Chief Executive of the Irish Dairy Board until 2006, as Chairman of the Irish Horse Board, and also as chair of the Government-established Seafood Strategy Review and Implementation Group. We are most grateful for his contribution as chair of the Teagasc Authority over ten years during which he guided the organisation as it developed into a modern, science based, relevant organisation to support the agriculture and food sector adapt to the challenges facing the sector. Ar dheis Dé go raibh a anam.

I was personally delighted to be reappointed as Chairman of the Teagasc Authority for a second five year term, by the Minister for Agriculture, Food and the Marine, Charlie McConalogue T.D. My colleague Professor Thia Hennessy, who is Head, College of Business and Law, University College Cork was also reappointed for a second five year term to the Teagasc Authority by Minister McConalogue. We look forward to working with Ms Vanessa Kiely O'Connor who was nominated by ICOS to replace Mr Pat Duffy who brought great experience and judgement to the Authority during his term, and Macra na Feirme President, Ms Elaine Houlihan, was also appointed to the Authority, replacing Mr John Buckley, who contributed greatly to the Authority. We also acknowledge the great work done by Ms Eilís O Connell from the Department of Agriculture, Food and the Marine and Professor Gerald Fitzgerald of University College Cork. Ms Louise Byrne, the Deputy Chief Inspector in DAFM replaces Ms Eilís O Connell as the Department representative on the Teagasc Authority.

In conclusion, I would like to thank Professor Frank O Mara, his senior team, and all Teagasc staff for their excellent work in 2023.



Teagasc senior management briefed members of the Oireachtas in November 2023.

Report of the Director



Professor Frank O'Mara, Teagasc Director.

Last year will be remembered as a tough year for agriculture, with poor weather, continued high prices for farm inputs, especially fertiliser, feed and energy, large reductions in farm produce prices and incomes, especially in the dairy and tillage sectors, and a significant reduction in the maximum organic nitrogen rate allowed on farms in derogation which affected a large number of farmers availing of a derogation. 2023 was also a year where we marked 50 years of EU membership with a very interesting conference in November, and reflecting on that period it is obvious that 2023 was not the first tough year for Irish agriculture in the last 50 years, and the sector has always shown great resilience and determination in the face of challenges, and no doubt it will do the same again.

Against this backdrop, Teagasc sought to enhance its contribution to the sector by providing scientific leadership and support to Irish farmers, growers and food companies, and assisting policy makers with analysis and support for their decision making. Teagasc recognises that sustainability in our food system has three components, economic, social and environmental. We support farmer incomes through advising on system improvement and supporting technologies, but a very tangible support we give is through supporting farmers with scheme applications. The CAP Strategic Plan roll out continued during 2023 with a large number of schemes launched for farmers, funded by the EU and National Exchequer. In total there were 32 different schemes in addition to 10 different Targeted Agricultural Modernisation Schemes (TAMS) launched and/or operational during 2023. Advisors and their support staff assisted farmers to participate in these schemes.

The Department of Agriculture, Food and the Marine (DAFM) allocated State Grant Aid of €162.196 million to Teagasc in 2023, an increase of €12.296 million over the 2022 allocation of €149.9 million. The 2023 outturn produced savings of €1.42 million for superannuation and €4.3 million for capital (2022 produced savings of €1.5 million for capital).

Total Teagasc income in 2023 was €232 million, which was €7 million (3%) greater than in 2022. Total Teagasc

expenditure in 2023 was €237 million which was €13 million (6%) greater than in 2022. The organisation experienced an increase in activity in 2023 compared to 2022 which had itself been an exceptionally busy year for Teagasc. Own generated income increased by 2.8% to €70.3 million and there was an increase of €7.5 million in Grant Aid from DAFM compared to 2022 including an increase of €1 million in capital Grant Aid draw down. High inflation persisted in 2023 and Teagasc planned a reduction in reserves. With an increase in staff numbers pay costs increased by 6.6% to €100 million. Non-pay expenditure increased by 8.2% to €77 million with general operating expenses of €55 million being 9% greater than 2022. Construction work progressed on a new €3.2 million research facility in support of the Vista Milk Programme in Moorepark, Fermoy and on a €12.7 million National Agriculture Sustainability Research & Innovation Centre in Johnstown Castle. Teagasc invested in classrooms in Kildalton College and in Solar PV installations and completion of the upgrade to LED lighting which commenced in 2022.

Teagasc continues to fully adhere to the Code of Practice for the Governance of State Bodies and in 2023 it established a Governance Review Group to further strengthen the corporate governance framework of the organisation.

Teagasc's combined research, advisory and education strength

Harnessing the combined capability of our research, advisory and education services to provide research-based technological information to farmers and students is the unique strength of Teagasc. Many important initiatives capitalising on this strength commenced or continued in 2023. Our Climate Action Strategy got a lot of traction during the year. A new Marginal Abatement Cost Curve for greenhouse gas emissions was launched in July by the Minister for Agriculture, Food and the Marine Charlie McConalogue T.D. in Dublin, which set out a pathway for meeting the sector's 25% emissions reduction target, albeit with very high adoption rates of the technologies included in the MACC. The sustainability digital platform, now called AgNav which we are developing with ICBF and Bord Bia became available in a pilot version and was immediately used by the advisors on our new Signpost Advisory Programme. They use it to benchmark a farm's current emissions and then make a plan to reduce them (Know my number – Make my plan), and following the launch of the programme in June, 10,000 farmers signed up, with close to half having their plans developed in 2023, and the remainder developing their plan in 2024.

Water quality is also a very important environmental issue. Teagasc has two big programmes supporting water quality, the DAFM funded Agricultural Catchments Programme and the Agricultural Sustainability Support and Advisory Programme (ASSAP) which is funded by DAFM, DPHLG, and which is a joint programme with the dairy industry who also employ a significant number of advisors. The

importance of improving water quality is clear, and this was emphasised by the outcome of a review of water quality data as part of Ireland's current derogation and which resulted in a cut to the maximum 250kg organic N/ha limit to 220 kg/ha. Analysis by Teagasc published in 2023 highlighted the significant effect this cut could have on the incomes of farmers affected.

Dairy beef is another area that Teagasc has targeted in recent years given the increased supply of calves from the dairy herd. We have a strong research programme on dairy beef at Grange and Johnstown Castle which supports our DairyBeef 500 advisory programme. There are several new technologies supporting the programme, including sexed semen, which saw availability of about 300,000 sexed straws in 2023 from the original sorting laboratory in Moorepark plus a new industry established laboratory. In addition, the Dairy Beef Index developed by ICBF and Teagasc has been supplemented with the Commercial Beef Value. Teagasc worked with DAFM and other stakeholders to develop a 10 point Action Plan for the sector which underwent a public consultation at year end.

There are many other important technologies which Teagasc has developed or enhanced. Some examples are the Life Cycle Assessment methodology for measuring the carbon footprint of Irish grain developed in collaboration with Tirlan and which demonstrates the low carbon footprint of Irish grain; a demonstration of mechanical weed control for the horticulture sector at the 2023 Crops Open Day; research which proved the higher levels of the beneficial nutrients omega-3 and conjugated linoleic acid in the milk of grass-fed cows; sheep breeding values to reduce methane emissions; research which showed that higher above ground biodiversity such as found in multi-species swards leads to higher below ground soil biodiversity and health; and research which focuses on reducing food waste linked to marketing standards in the horticulture sector in the ROSETA project.

The Teagasc Pig Development Department (PDD) continues to support pig producers by providing research, advice and education across a range of issues of importance to the sector. It delivers an integrated research and advisory programme to this important sector. The Research programme includes a balanced portfolio of projects directed towards solving current problems and issues which are likely to be important in the future. It covers research on nutrition, welfare, health, management, environment and technology. A key area is the continued improvement in reducing the amount of antimicrobials on pig farms. Teagasc PDD developed the pilot database (now used by DAFM); research and advice has impacted on-farm usage of antimicrobials. Usage has decreased from 105mg/kg pig meat produced (in 2020) to 49mg/kg pig meat produced (in 2023). The advisory team provide the key link between research and knowledge transfer, delivering a comprehensive business and technology service to farmers and a comprehensive education and training programme.

Rural development is a key focus. Equine husbandry, rural tourism, and energy production are increasingly important and Teagasc supports their development. In 2023 Teagasc continued its enhanced support of the organics sector,

with plans developed to increase organics research to complement the increased resources already available in the advisory service. Horticulture and forestry are also key enterprises for us. Teagasc attendance at Bloom was a highlight of the 2023 summer. The new Forestry Programme 2023-2027 was launched in 2023, and Teagasc organised a very well attended webinar with over 800 people registered and a nationwide series of 20 information meetings to raise awareness and promote the Programme. Teagasc organised an Upland Farming and Landscape Management symposium in 2023, and important programmes continued in health and safety, succession and inheritance, and supporting the circular bioeconomy.

Teagasc also provides limited, but significant, support to the development of 'sustainable food systems' through technical support to development projects in Eritrea, Kenya and Tanzania. Teagasc also co-operates in development projects in countries such as Vietnam and Zambia. In 2023 we began a collaboration with University College Cork the 'Teagasc UCC International Agriculture Student Development Programme.'

Given the challenges facing the agriculture sector with climate change and water quality combined with the on-going challenges of farm viability across many enterprises, we could see the need to restructure the advisory service to best position itself to support farmers to meet these challenges. In response, work to develop a new Advisory Programme Strategy 2024-2030 took place in 2023. Amongst the actions included in the strategy is the restructuring of the advisory service to enable it to provide a better and more targeted technical and business development service to farmers. The strategy, which will be implemented on a pilot basis in 2024, aims to re-balance the focus of the advisory service to provide technical advice to meet sectoral challenges while also providing the support demanded by Teagasc clients around scheme applications and regulatory compliance.

Partnerships

Working in partnership is a key principle for Teagasc. We are proud of the eight joint programmes we have with the dairy co-ops, which focus on the important topics of profitability, climate change, water quality and biodiversity, and the partnership we have with meat processors in the FutureBeef Programme supporting the suckler sector, and many other commercial organisations who support our programmes. Collaboration is a key ingredient of success in research, and Teagasc leads the SFI funded VistaMilk centre (which also receives funding from DAFM) which is developing digital solutions for the dairy sector, and the Enterprise Ireland funded Meat Technology Ireland centre which is developing improved technology for the meat processing sector and which started its phase 2 programme in 2023. We are also proud to be a key partner in the SFI funded APC Microbiome Ireland which celebrated its 20th year in 2023, and the BiOrbic SFI centre. We acknowledge the huge contribution of the many Irish research partners we have in these centres and other projects, and also the very valuable collaborations we have with many EU institutions through the Horizon programmes,

and with other international partners through various relationships. These are all incredibly important to Teagasc.

Campaigns, Programmes and Open Days

Campaigns are an effective way to mobilise resources and stakeholders around important issues and Teagasc utilises them as key parts of our programme to translate research-based advice to farmers. These set clear goals and objectives and provide a platform which can be used by our enterprise advisors for their local advisory programmes with clients. Key campaigns and programmes in operation currently include the Signpost programme with its constituent joint dairy programmes, FutureBeef and Dairy Beef 500, and the Sheep BETTER Farm programme, all of which support farmers to improve climate, water quality and biodiversity outcomes while farming profitably, Grass10 and Clover 150 which focuses on grassland management and incorporation of clover into grassland systems, the Boortmalt Joint Programme which focuses on malting barley production, and the ACP and ASSAP programmes which focus on water quality.

Enterprise specific open days are also hugely popular among farmers and Sheep 2023, Moorepark 2023 and our Crops Open Day at Teagasc Oak Park all enjoyed strong attendance.

Capacity building

Teagasc plays a key role in capacity development for the agri-food sector. The Education Service is central to this, with almost 4,000 students across our full-time, part-time and distance education courses, as well as supporting the education of over 1,300 students in Teagasc linked higher education programme. A landmark in our education provision occurred in 2023 when then Minister for Further and Higher Education, Research, Innovation and Science Simon Harris T.D. announced the launch of two new farming apprenticeships at Teagasc Oak Park. Farm Manager and Farm Technician apprenticeships were just the start and apprenticeships in Sports Turf (Technician) Horticulture and Pig Management will follow.

The Walsh Scholarship Programme is another major contributor of human capital development for the agri-food sector. There were 227 active research Walsh Scholars at the end of 2023, and major developments in 2023 were the start of planned significant increases in the stipends available to students, and the completion of a new strategy for the programme which sets a vision for it to be a world leading agrifood postgraduate research training programme fostering independent scientists to positively impact society through a broad range of careers.

Teagasc also has over 100 contract and post-doctoral researchers at any time, who also receive significant opportunities for training and development during their time with Teagasc, as do contract advisors, education officers and other staff. Whether these staff stay in Teagasc or join many other organisations, we aspire that their

time with us is a positive development experience and contributes to capacity building for the sector.

Finally, the many courses and training events for farmers and the food industry, and knowledge dissemination by advisors all contribute in no small way to capacity building for the sector. For example, the annual Food Innovation Gateways at the Teagasc Food Research Centre, Moorepark in 2023 focused on bioprocessing and at the event, Teagasc launched a Bioprocess Innovation Suite in Moorepark – a one-stop shop for bioprocess development, optimisation and scale up. Bioprocessing is key to the food, pharmaceutical and energy sectors and several emerging industries and technologies, including the production of renewable biofuels, therapeutic stem cells and new vaccines. Another example is Conversations for Change which is a communication skills training programme developed for animal health professionals and Teagasc farm advisors. The behaviour change intervention, which forms the scientific basis for the initiative, was developed out of an interdisciplinary collaboration between psychologists, animal health professionals and veterinary scientists in the safefood-funded antimicrobial resistance project.

Facilities and Pilot Plants

Teagasc strives to maintain state of the art facilities for its programmes. In 2023, we commenced construction of new laboratories in Johnstown Castle, the National Agricultural Sustainability Research and Innovation Centre, a €12.7m development. We completed the Farmyard Development project and new classrooms in Kildalton College. We opened a new Food Biotest Facility and a new High Welfare, Low Emissions Pig House in Moorepark. Several advisory offices were also upgraded, and many other capital improvement and energy efficiency projects were completed including LED lighting and solar panel installations.

A very important part of the Teagasc offering to food and beverage companies is the availability of pilot plant facilities, which are backed up by skilled operatives and technical staff. Moorepark Technology Limited is the largest of these and is a subsidiary of Teagasc and partly owned by Irish dairy companies. It offers mainly dairy pilot plant facilities for rental and now has up to 100 customers who use the facilities annually, including 17 who came from abroad in 2023. Teagasc has also developed the National Prepared Consumer Food Centre in Ashtown with significant financial support from DAFM, and the DAFM also supported the first phase of the a Brewing and Distilling Centre in Oak Park. These pilot plants are very important for the development of the Irish food and beverage industry, and in addition to the state of the art facilities, there is the opportunity for companies to develop collaborative research projects with Teagasc researchers. For example, The National Prepared Consumer Food Centre worked with 97 companies in 2023, providing services in new product development, analysis & testing, training and technical support. Projects completed in 2023 have resulted in the establishment of new food businesses, the launch of innovative new food and drink products and strengthened the creation of jobs within the wider food industry in Ireland.

Communications and outreach

Teagasc employs many channels to get its message out to end-users. These include the critically important advisor-client relationship, be it in a one-to-one setting or discussions groups, local and national events and open days, and targeted publications such as Today's Farm, Newsletters and T-Research. Having a high profile presence at events like the National Ploughing Championships, Bloom and many other shows throughout the country is very important and valuable to Teagasc. In addition, in recent years, Teagasc has developed a suite of digital tools which are increasingly important. A series of podcasts are available for most enterprises, with the DairyEdge regularly enjoying 7,000 listens per episode, and the BeefEdge passing 100,000 listens in early 2023. A new Teagasc app, Teagasc Daily, was completed in 2023 and delivers a daily news stream 365 days per year. Teagasc runs many webinars, with the Signpost Webinar series continuing to draw attendance of 3-400 each Friday for its weekly broadcast. Teagasc now has much enhanced video production capability and uses this extensively to enhance the standard of many events throughout the year. Finally, Teagasc engages proactively in campaigns such as Science Week, and the BT Young Scientist Awards, and in TV through science programmes such as 10 Thing to Know, and Teagasc scientists regularly contribute articles to national media such as Brainstorm on RTE, as well as featuring on many local and national radio shows. We consider it is important to communicate to a diverse range of end users and the public.

Values, Teagasc Together, Inclusiveness and Gender Equality

In 2023, Teagasc undertook a process to develop a new set of values, and following a very inclusive and consultative process, the new values of Respect, Integrity and Excellence were presented to and fully endorsed by the Authority. These values are at the heart of our culture and will underpin expected behaviours within the organisation and in its interactions with stakeholders.

Teagasc strength is in the combination of its advice, education and research capabilities, backed up by superb operations teams. A Teagasc Together way of working is embedded in our new Values and is the title of the current Statement of Strategy. At the end of 2023 staff were invited to submit examples of this 'Teagasc Together' work ethos. Twenty six examples of projects embodying the Teagasc Together culture were received. These examples extended across the breadth of the organisation with scientists, technical staff, advisors, specialists, and operations staff working together to deliver exceptional outputs for our clients and stakeholders.

Teagasc continued its Diversity and Inclusion programme of activities across 2023. The working group pooled its efforts to stage a Teagasc Diversity and Inclusion Month in June. Over 1,259 staff interacted with the programme which celebrated differences, created greater awareness around the importance of inclusion and educated colleagues on

topics such as neurodiversity and Pride. Pride flags were flown, staff wore Pride badges, and colleagues engaged in webinars on the topics of transgender and neurodiversity.

Teagasc published its second Gender Pay Gap Report which shows how the pay gap in Teagasc has reduced again for the seventh consecutive year. In 2017, our pay gap was 17% and it has been gradually closing to a gap of 11%, as at June of 2023. Teagasc continues to invest in initiatives set out in the Teagasc Gender Equality Plan. Teagasc recognises that being able to attract, develop, and retain female talent is crucial, and that organisations with gender-diverse management teams outperform organisations that do not have such diversity at the decision-making table.

The appointment of more females to key management roles in Teagasc has positively changed the organisation structure and the leadership dynamic. It has provided important female role models for staff who have chosen to begin their careers in Teagasc. We are seeing greater participation of female staff in post graduate courses, and more females stepping forward for nominations to state boards. Teagasc is actively creating a welcoming workplace culture where staff, in particular female staff, will want to develop their careers, so that they can reach their true potential by advancing through our organisation.

Our staff and supporters

None of the achievements and outcomes for Teagasc could have been achieved without our dedicated and hard-working staff who are tremendously committed to the work of Teagasc and the development of the agri-food sector. Likewise, my colleagues in senior management and at all levels of management in the organisation demonstrate huge commitment to their jobs. I thank them all for that. I am also very grateful for the support of our farmer and food industry clients, our students and all other users of Teagasc services. And finally, the support of the Department of Agriculture and the Minister and Ministers of State is critical to the success of Teagasc and enables us to do the important work we do to support the Irish agri-food sector.



From left Professor Frank O'Mara, European Commissioner Mairead McGuinness, Minister for Agriculture, Food and the Marine Charlie McConalogue T.D. and Marc Fesneau, French Minister for Agriculture at a conference to mark 50 years of EU membership at Teagasc Ashtown in October 2023.

Teagasc Authority Members



Back row: Alice Doyle, Liam Herlihy – Chairperson, Liam Woulfe, Martina Donnelly. Middle row: Helen Sheridan, Elaine Houlihan, Louise Byrne. Front row: Vanessa Kiely O'Connor, Elizabeth Reynolds, Professor Thia Hennessy. Teagasc Authority members pictured in May 2024.

Teagasc Senior Management



Professor Frank O'Mara
Director



Professor Pat Dillon
Director of Research

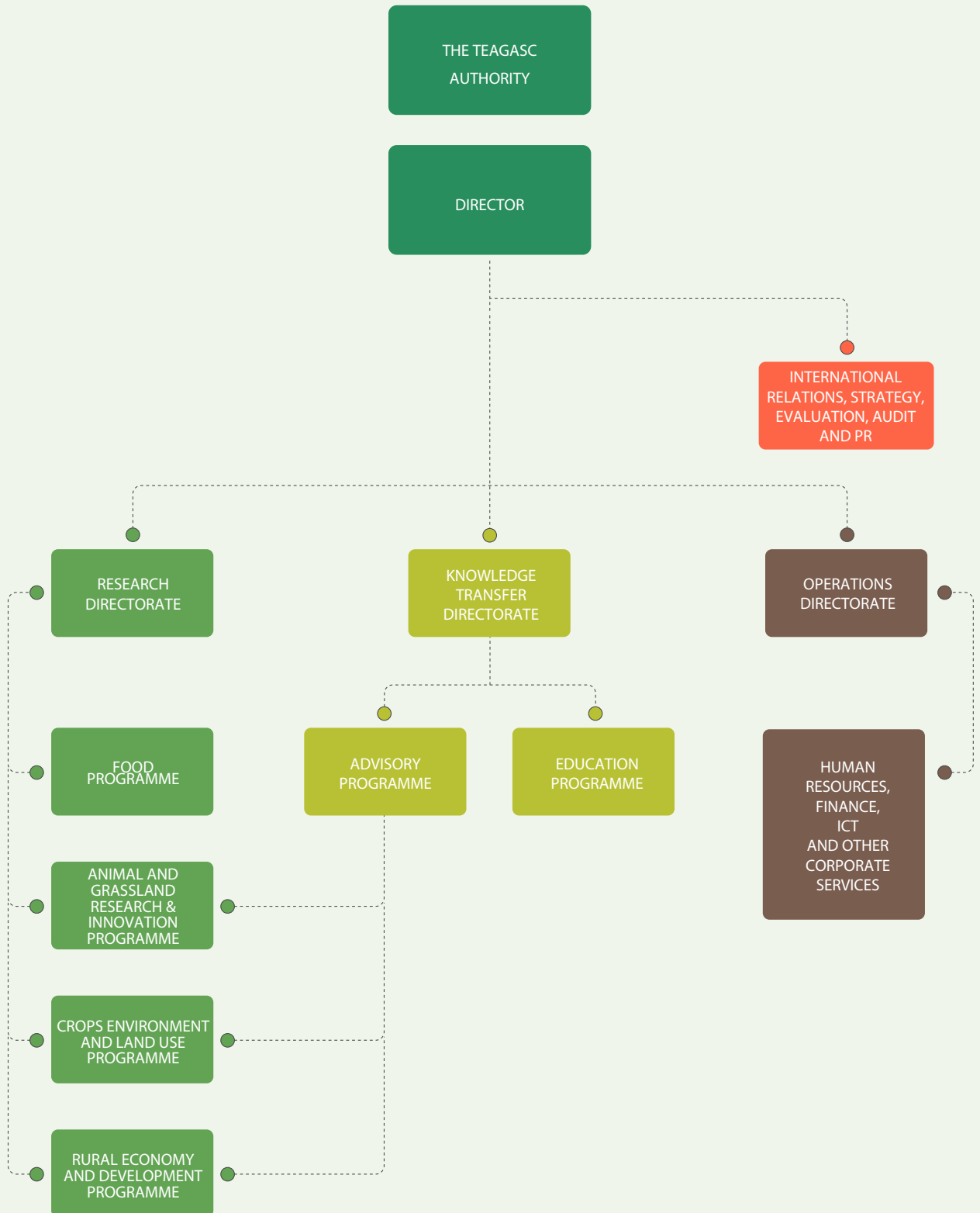


Stan Lalor
Director of Knowledge Transfer



Alan Phelan
Chief Operating Officer

Organisational Chart



Teagasc Offices & Centres

- Head Office, Research Centre and Advisory
- ▲ Research Centre and Advisory
- Advisory Centre
- Research Station
- ▲ Teagasc College and Advisory
- ▲ Private College





Strategic Goal 1

To support improvements in farmers' living standards and wellbeing.

- Supporting Viable Farming
- Securing Farmer Health and Safety and Wellbeing
- Enhancing Human Capital (Education)
- Supporting Rural Development
- Supporting Overseas Agricultural Development

Supporting viable farming

New Advisory Strategy

Work to develop a new Advisory Programme Strategy took place in 2023. Amongst the actions included in the strategy (which, following consultation with stakeholders, will begin implementation in 2024) is the restructuring of the advisory service to enable it to provide a better and more targeted technical and business development service to farmers.

Given the challenges facing the agriculture sector with climate change and water quality combined with the on-going challenges of farm viability across many enterprises, the need was identified to restructure the advisory service to best position itself to support farmers to meet these challenges.

The strategy aims to re-balance the focus of the advisory service to provide technical advice to meet sectoral challenges while also providing the support demanded by Teagasc clients around scheme applications and regulatory compliance.

Supporting farmers in CAP and national schemes

The CAP Strategic plan roll out continued during 2023 with a large number of schemes launched for farmers, funded by the EU and National Exchequer. In total there were 32 different schemes in addition to 10 different Targeted Agricultural Modernisation Schemes (TAMS) launched and/or operational during 2023. Advisors and their support staff assisted farmers to participate in these schemes.

Sanction for additional temporary staff was received from DAFM in 2022. This was vital in the delivery of larger schemes including ACRES, Nitrates Derogation Planning and Nutrient Management Planning for clients during 2023.

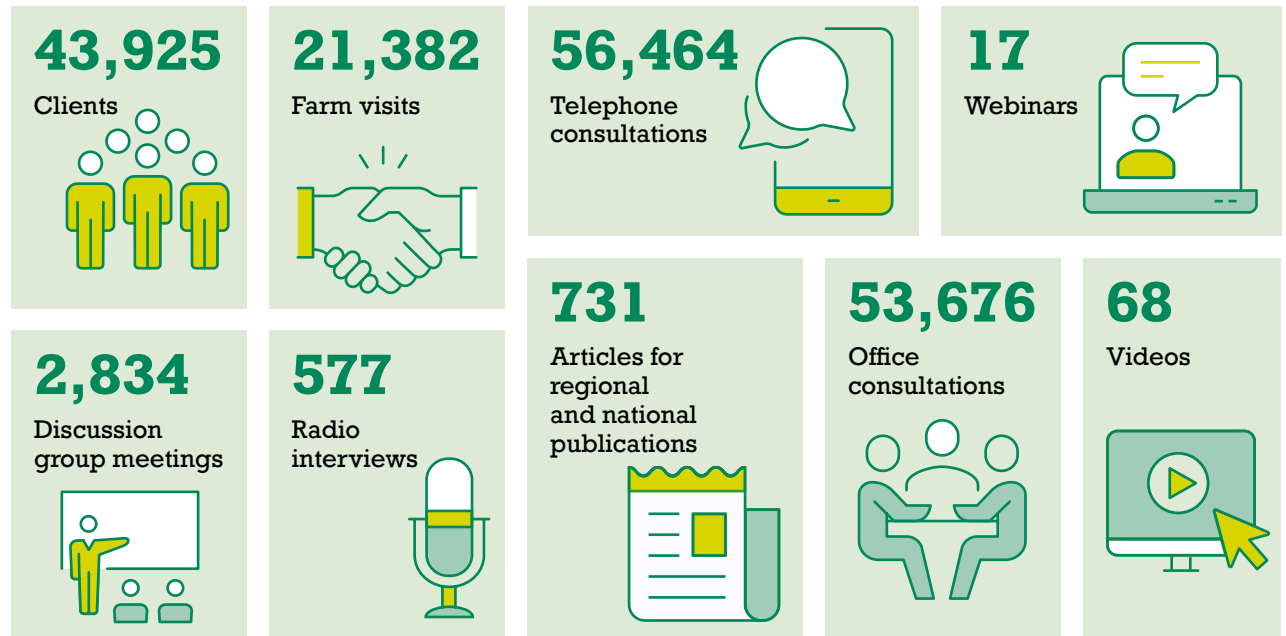
Tranche II of ACRES opened in the late autumn. Teagasc completed 2,736 new plans. Advisors received training on the assessment of low input grassland (LIG) and co-operation areas (CP) for the scheme and were busy visiting farms over the summer to complete this work for the 13,037 applicants in Tranche I of the scheme. The launch of the Area Monitoring System by DAFM led to increased workload visiting farms to take AgriSnap photos to verify cropping types and land areas.



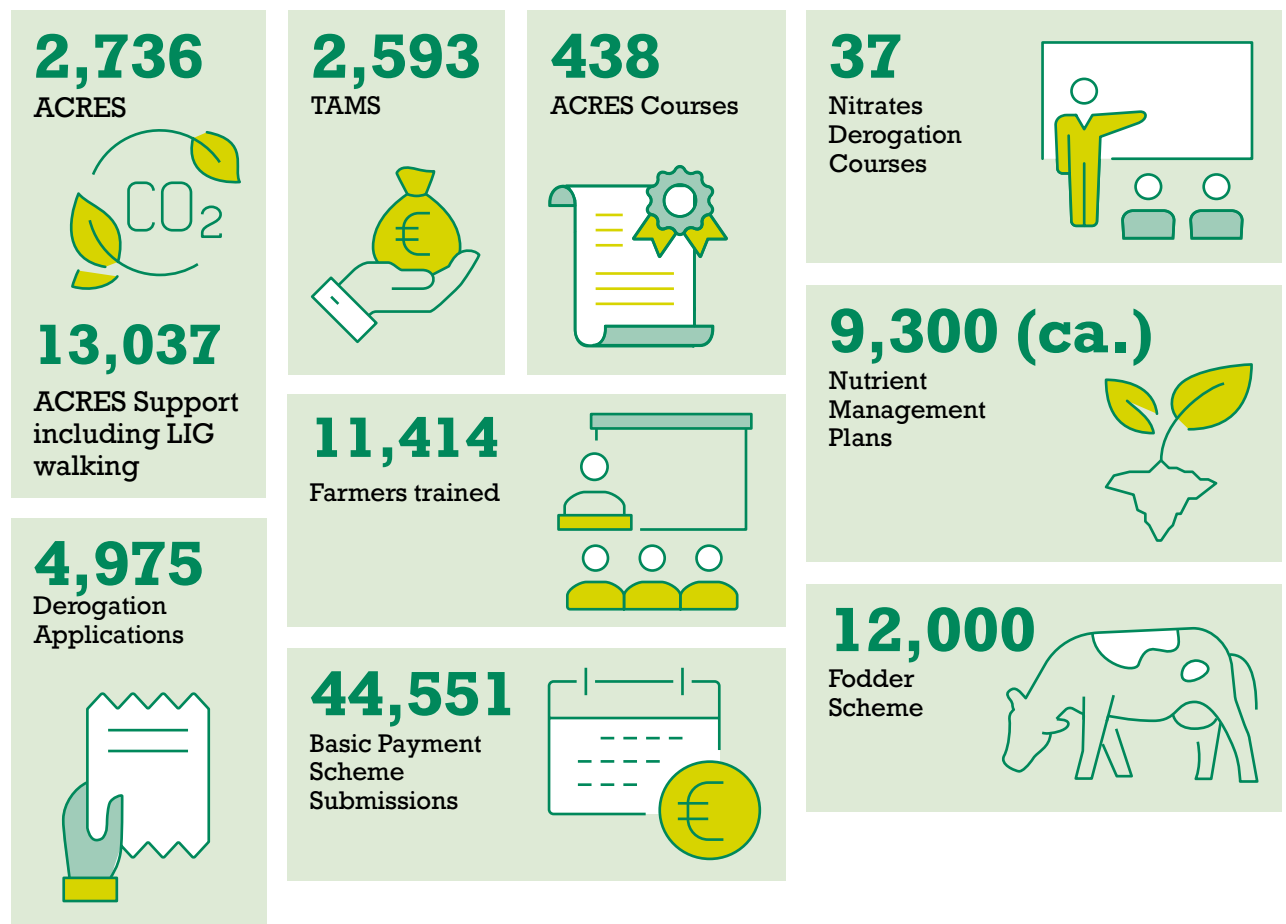
Monaghan advisor Leanne Conaty (centre) with Seamus McNally and his daughter Julie Mullarkey. Seamus and Julie formed a Registered Farm Partnership in 2019 and are currently dairying at Glaslough in Co Monaghan. They are discussing their BISS application.

Supporting viable farming

Knowledge Transfer activities by Teagasc regional advisors in 2023



Scheme Applications Supported



50 years of EU membership

A conference to mark 50 years of Ireland's membership of the European Union and its impact on agriculture, took place at the Teagasc Research Centre Ashtown, County Dublin in October.

Teagasc Director Professor Frank O Mara welcomed the keynote speakers Mairead McGuinness, European Commissioner for Financial Stability, Financial Services and Capital Markets; Charlie McConalogue TD, Minister for Agriculture, Food and the Marine and Marc Fesneau, the French Minister for Agriculture.

Speaking at the event, Minister McConalogue said; Ireland's accession into the European Economic Community, now the European Union, in 1973 was a pivotal moment in our nation's history. Few events have been as transformative. The decision to join the European Community was overwhelmingly supported by the people of Ireland, and was driven by their

desire for peace, unity, and shared prosperity. Those convinced Ireland's future lay in Europe showed courage, courage in a new vision for our country, as members of a bigger European family.'

Minister Fesneau said; "Within the European Union, Ireland and France are trusted partners, particularly when it comes to agriculture. The Common Agricultural Policy, which came into force in 1962, is one of the oldest European policies and one of the major foundations of European construction. Within the EU, Ireland and France share a common vision of agriculture: sustainable, resilient and successful, based on a family model."

The conference heard how the Irish agriculture sector has modernised, mechanised and specialised since EU accession.



Teagasc Director Professor Frank O'Mara (right) with Minister for Agriculture, Food and the Marine Mr Charlie McConalogue T.D. (left), Mr Declan Troy Teagasc, and Mr Marc Fesneau, French Minister for Agriculture at the Teagasc Conference on 50 years of EU membership.

FAIRshare

FAIRshare, a Teagasc-led, EU Horizon 2020 funded project focused on improving the uptake of digital technologies in agriculture concluded in 2023. "The project made significant strides increasing the adoption of digital advisory tools by farm advisors across Europe," said Teagasc project manager Raquel Caetano Ferreira.

"As part of this project. We were able to upgrade 20 advisors' computers to make using digital tools and advisory services (DATS) easier on farm. The tablets facilitated the use of more DATs, reduced paperwork and enhanced farmer engagement," said Richard O' Brien Teagasc Regional Advisory Manager in Waterford and Kilkenny.

Teagasc advisor Aine Butler using a blue-tooth enabled tablet with Kilkenny farmer Ruairi Cummins.



Knowledge transfer (specialists)

A total of 70 specialists are attached to the Animal and Grassland Research and Innovation Programme, the Crops, Environment and Land Use Programme and the Rural Economy Development Programme. In 2023 these specialists generated the following one-to-many knowledge transfer outputs:

Press articles	268
Newsletters	156
Technical articles	90
Conference papers	64
Radio/TV appearances	254

(These are in addition to knowledge output activities of regional advisors.).

Young EUFRAS



A group of young advisors pictured at Teagasc Oak Park, Carlow who participated in the Young European Forum for Agricultural and Rural Advisory Services (EUFRAS) Training and Mentorship Programme. Also pictured are Teagasc staff George Ramsbottom, Rachel Clancy and Michelle Lavelle.

Enterprise highlights

BEEF

Dairy calf-to-beef

A DairyBeef 500 spring conference took place at two venues in Tipperary and Cork in January for both dairy farmers who want to produce more saleable calves, and beef farmers who have dairy calf-to-beef enterprises. The first groups of farmers graduated from two Teagasc dairy calf-to-beef courses which were run as part of the Teagasc Dairy Beef 500 programme.

Over 200 farmers attended a national farm walk and conference on the farm of Pat Collins outside Castlemartyr, Co. Cork to see a high output high profit dairy calf-to-beef system. A key aspect of the Collins family system is the high proportion of grazed grass in the lifetime performance of stock.

Beef Edge podcast

The Teagasc Beef Edge podcast exceeded 100,000 listens in early 2023. Farmers have tuned in to hear timely technical information and the latest research and advice from Teagasc and industry stakeholders.

Beef-quest

Nationally, mean age at finishing is approximately six months later than that achieved on research and high-performing commercial farms. The Teagasc-led Beef-Quest project funded by DAFM in 2023 will investigate the effects of nutrition, health and on-farm environment factors in constraining animal growth performance and finishing age of beef cattle, and assess their impacts on GHG emissions. Working in collaboration with the Irish Cattle Breeding Federation (ICBF) and UCD, this project will use data available within the industry to explore these issues.

New beef breeding indexes

Changes were made to suckler beef breeding indexes in 2023 to reflect increased production costs and output values at farm level. The updates ensure the indexes better align the economics of production traits to reflect commercial reality. The last time these Economic Values were updated was in 2015 and given price changes, particularly since 2020, these updates were essential.

Carbon traits were added to reflect “the sharp focus on the environmental footprint of food production” and the potential economic implications of GHG emissions for beef cattle farmers in coming years. The indexes were explained by Paul Crosson, Teagasc Beef Enterprise leader at the 2023 Beef Conference.

Teagasc beef conference

The theme of the conference was: “Improving our Beef Sector’s Green Credentials” and took place in the Shearwater Hotel, Ballinasloe, County Galway on Tuesday, 21 November.

The first conference session focussed on ‘Implementing Sustainable Technologies on Beef Farms’ and included presentations from Paul Crosson, Teagasc Grange on the changes to the beef breeding index, Ellen Fitzpatrick from Teagasc Johnstown Castle on low input/high output dairy beef systems and Maria Guelbenzu from Animal Health Ireland (AHI) on Infectious Bovine Rhinotracheitis (IBR).

The second session looked at ‘Increasing our Competitive Advantage on the Global Stage’ with presentations from Siobhan Kavanagh from the Teagasc Signpost Programme on the main drivers of Greenhouse Gases (GHG) on beef farmers, Anais L’Hote from the French Livestock Institute on carbon farming and Rupert Claxton, from GIRA (UK), who gave an overview of the Global Beef Market.

Suckler event

On September 8th a major Autumn Beef Event took place on the Kildalton College Suckler Unit. Over 300 visitors to the event saw the physical and financial performance of the long established and well known Kildalton suckler herd. The college breeds its own replacements and finishes heifers, steers and bulls at a relatively young age.

As well as seeing the suckler herd, visitors also had the opportunity to see numerous demonstrations focusing on dairy-beef stock, selecting animals fit for slaughter, as well as fencing relevant to beef farms. Information was also available on a range of issues important to beef farmers such as BEEP, SCEP, organic farming, forestry, succession, energy, farm safety and breeding from Animal Health Ireland, Bord Bia, and ICBF.

Newford farm moves

The Newford suckler herd a partnership between Teagasc and Dawn meats was established in 2015 on land leased from the IDA near Athenry. In 2023 the IDA found a new tenant and the Newford herd was moved to a new location in county Roscommon.

Key programmes

Future beef

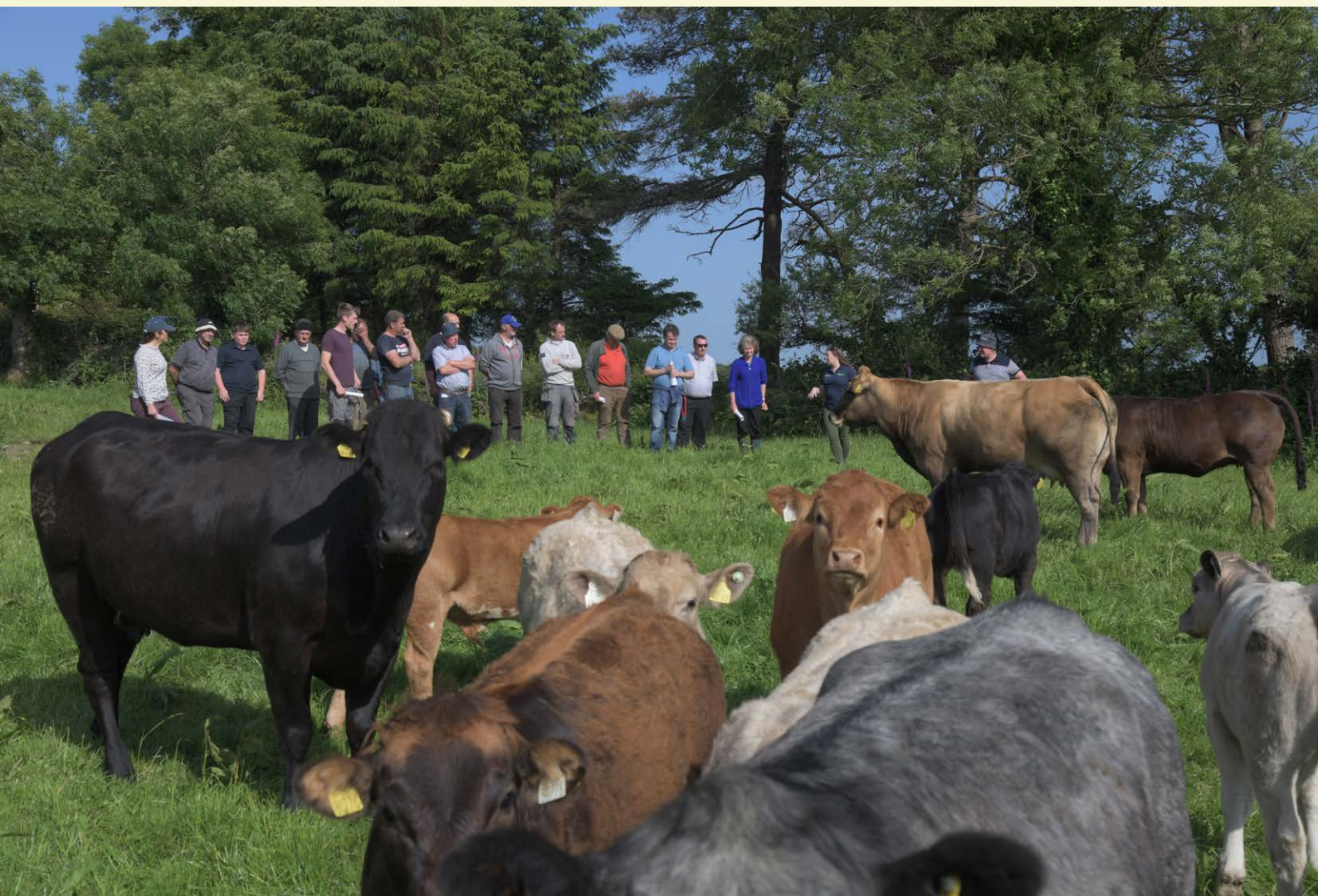
This programme focusses on sustainable beef production and media campaigns including media articles and regular updates are delivered from the network of 22 Future Beef farms

DairyBeef 500

Dairy calf to beef farmers are supported through groups in all advisory areas, knowledge transfer campaigns, advanced calf to beef courses and tailored publications.

Grass 10

This programme delivers a large number of training courses, weekly Grass10 updates, Grass10 group meetings and the Grassland Farmer of the Year competition.



Future Beef Programme advisor Aisling Molloy with a farmer group on the west Cork Future Beef farm of William Kingston.

SHEEP

Sheep 2023.

After a challenging 18-month period, and a five-year interval since the last event due to COVID-19 restrictions, Sheep 2023 was a welcome opportunity for the industry to get back to normality. The appetite displayed by sheep breeders was particularly strong, with almost 800 sheep on display across 30 breed societies.

Within this, eight breeds were holding national or All-Ireland breeding championships with the Irish Texel Sheep Society recording a massive entry of over 260 head. Other breeds showing on the day included: the Belclare Sheep Society; the Irish Blue Texel Sheep Society and Dassenkop Sheep; the Irish Charollais Sheep Society; the Irish Vendeén Sheep Society; the Irish Rouge Sheep Society; the South of Ireland Hampshire Down Breeders; and the South of Ireland Branch Irish Suffolk Sheep Society.

Breeding values

Minister of State at the Department of Agriculture, Food and the Marine Martin Heydon T.D. launched new breeding values for sheep aimed at reducing methane emissions at the Sheep2023 event. This important scientific breakthrough can enable the Irish sheep industry to reduce methane output through animal genetics. The new breeding values for methane emissions are based on collaborative research between Teagasc and Sheep Ireland and are part of the €3 million research project 'GREENBREED', funded by the Department of Agriculture, Food and the Marine.

Sheep BETTER farm programme

The programme is built on collaboration between volunteer farmers and Teagasc research and advisory staff in the application and development of appropriate technologies including: grassland management, breeding and production methods. Close linkage with discussion groups and other advisory initiatives is an integral part of

the process and BETTER farmers share experiences and performance results with visiting groups.

Key elements:

- Participating farmers implement an individual animal performance recording programme for all sheep on the farm, based on electronic identification (EID) with help and guidance from Teagasc research staff. Individual data on ewe performance (litter size, mortality, weight at joining) and lamb performance (including lamb weights at birth, seven and 14 weeks of age and at sale) collected on the flock is available to Teagasc.
- Each participant records on-farm grass supply. Records are also kept of all flock management events. Farm financial performance is measured through participation in the National Farm Survey operated by Teagasc so that a consistent set of financial data is produced for each farm.
- The farmer shares physical and relevant financial performance information with other farmers through Teagasc discussion groups and organised visits.

All sheep BETTER farms are also Signpost farms within the Signpost Programme.

Nóirín McHugh, Teagasc and the lead researcher of this work, said:

"The research based on methane records on over 5,000 animals from all across Ireland shows large genetic variation for methane emissions exists within the national sheep flock. Through the Euro-star indexes, we have the tools available to harness these differences to breed more environmentally sustainable animals, without negatively impacting an animal's performance and profitability."



Sheep 2023

DAIRY

Teagasc Moorepark Open Day

The Moorepark Dairy Open Day is a biannual event outlining research on all aspects of dairy farming including grassland management, animal genetics, animal health, environmental sustainability and farm infrastructure. The theme of 2023's event was 'Securing a Sustainable Future'.

Since milk quota removal was first discussed, the dairy industry has gone through a transformation. This has occurred against the backdrop of an economic crisis, a global pandemic and a war in Europe.

The open day emphasised that it is now important to take stock of the next phase of development for the dairy industry. Future developments will require close alignment with EU and national policy objectives. A particular focus is needed on:

- reduced carbon emissions
- improved animal welfare
- better water and air quality
- greater biodiversity

At the same time it is necessary to generate financially rewarding career opportunities with a favourable work-life balance.

Moorepark'23 highlighted the various technologies and practices available to farmers to underpin the economic, environmental and social sustainability credentials of their farms.

Teagasc National Winter Milk Open Day

The Teagasc National Winter Milk Open Day took place in Teagasc Johnstown Castle, County Wexford, on Wednesday, 6th September. The theme of the event was "Futureproofing Winter Milk Systems".

Teagasc Dairy Breeding Week

The breeding season on Irish dairy farms has become increasingly concentrated in the late April to June period. Teagasc and ICBF organised a series of 14 information events during 'Dairy Breeding Week' which ran from Monday, 20 March to Friday, 24 March. These online and in person events provided timely reminders to farmers on important genetic and technical issues underpinning a successful dairy breeding season.

Sexed semen

For the 2023 season, Sexing Technologies started sorting at Teagasc Moorepark in September 2022, and opened a second lab at the National Cattle Breeding Centre in November that same year. The combined output of the two labs for the 2023 breeding season was approximately 230,000 straws. There continues to be additional imports

of sex-sorted semen from other countries (mainly UK and New Zealand), meaning that approximately 300,000 straws of sex-sorted semen were available for use in the 2023 breeding season.

Nitrogen Management Strategies

Teagasc published a report on the impact of various management strategies on nitrogen loss and the impact of the 5th Nitrates Action Programme on reducing the loss pathways. The impact of the policy change on financial performances of the dairy businesses was included in the analysis. In the most extreme scenarios where a farmer was effected by banding and where the organic N limit was reduced from 250 to 220kg of organic N there was a reduction in profitability of up to 29%.

Enteric Methane

Research at Teagasc has directly measured the amount of methane produced by grazing dairy cows. The results demonstrate a seasonal nature to methane output at grass, with the lowest values observed in the spring period. The lower enteric methane emissions observed in the spring are related to an increase in pasture quality during this period with low levels of fibre.

As the grazing season progresses methane output increases in line with a deterioration in grass quality. When all available data is accumulated from experiments conducted under Irish grazing conditions, the methane conversion factor is 11.5% lower than currently used within the national greenhouse gas inventory.

Dairy Joint Programmes

Teagasc currently operates eight dairy advisory programmes in conjunction the major milk processing companies, creating a means of direct contact to approximately 90% of dairy farmers nationally. Individual programme structures vary somewhat, but are all based on a model of having Teagasc advisory staff seconded to work directly and exclusively with milk suppliers of the programme partner. In 2023, two major processors (Aurivo Co-Op and Kerry co-op) renewed agreements with Teagasc, extending to approximately 4000 milk suppliers in total.

Activities of the joint programmes in 2023 include on-farm events and webinars, targeted workshops on special-interest topics, support and training for new and recent entrants to milk, technical/development advice to suppliers, as well as regular updates and newsletters. The joint programmes delivered over 100 on-farm events in total during 2023 as well as supporting approximately 85 dairy discussion groups.

A key feature of all programmes is the co-ordination of a monitor farm network as an extension method. In 2023, over 80% of joint programme monitor farms participated in the SignPost Farm programme. These farms implemented and monitored steps to reduce gaseous emissions, reduce farm-N balances, and improve bio-diversity, in the context of operating financially viable dairy farms.

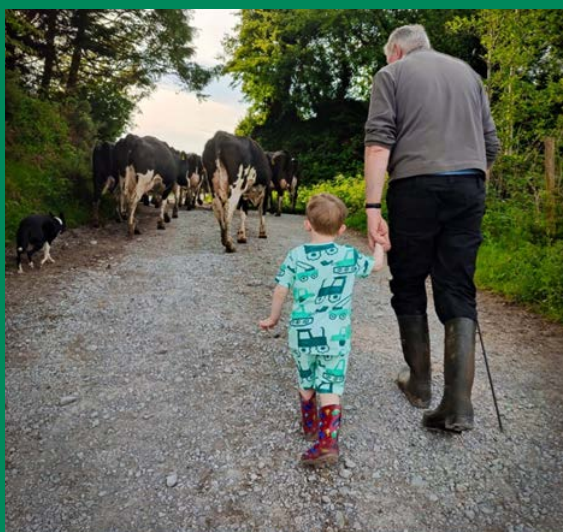


Laurence Shalloo addresses some of the huge attendance at the Teagasc Moorepark Open Day.

Photo competition

A ‘This is Dairying’ photo competition was run in the lead up to the 2023 Teagasc Moorepark Open Day.

The purpose of the photo competition was to encourage farmers to share positive images of what they love about dairy farming to show the many reasons why dairy farming is an attractive career.



CROPS

Carbon footprint

To date, the carbon footprint of grain has been estimated with global models, but none of these tools are representative of the Irish tillage sector, making it challenging for the sector to provide reliable data on the carbon footprint of grain.

Teagasc researchers have developed a bespoke life cycle assessment (LCA) model focused on the carbon footprint of Irish grains. The model adhered to international standards and computed emissions from on-farm and off-farm activities (e.g. fertiliser manufacture) until grains were sold from the farm.

They used Teagasc research to determine agricultural emissions and carbon sequestration. This new LCA grain model was applied in conjunction with Tirlán Co-op to complete the first carbon footprint analysis of commercially grown Irish grains. Activity data was collected from 48 growers who were representative of Tirlán Co-op's 1,100 grain growers in 2022.

The results showed that the gross carbon footprints of Tirlán Co-op's oats, wheat and barley crops were very low compared to other grain-producing regions in Europe and North America. Accounting for straw incorporation, the

Teagasc LCA grain model substantially reduced the carbon footprint values for oats and brought some growers' crops to or below net zero emissions.

The outputs of this research will be integrated into AgNav, which will in time support the marketing of Irish produced food and feed ingredients.

Crops Open Day

Supporting the tillage sector through research supported knowledge transfer is key to tackling the challenges that lie ahead. This was the message at the Crops and Cover Crop Cultivation Open Day in Teagasc Oak Park on 21 June. Over 80 research demonstrations highlighted the on-going research programme Teagasc has with both national and international partners.

Brewing

Ireland's South-East is Ireland's principal area for the production of grain for the drinks sector. It is also home to a national cluster of breweries, distilleries and malt houses as well to the country's only ab initio honours degree programme in Brewing and Distilling at the South-East Technical University.



Signatories to a strategic collaboration between Teagasc and SETU to enhance the Growing Malting, Brewing and Distilling sector in Ireland included: Tom O'Toole, Acting Vice President for Research at SETU and John Spink, Head of Environment, Crops and Land Use at Teagasc. Also pictured are, David Ryan, Allison George, David Phelan, Sinead Morris, Lisa Ryan, Stephen Foster and Brian Ogilvie representing SETU and Teagasc.

Crops Forum

The Teagasc Crops Forum entitled 'Mapping the Future for Tillage Farming in Ireland' discussed the latest agronomy issues facing farmers and also how to shape the future of the tillage industry. It took place as a hybrid event, in the Killashee Hotel, Naas, County Kildare and also as a live webinar.

Grassland farmer of the year



The Overall Winner of the Sustainable Grassland Farmer of the Year award for 2023 is dairy farmer Patrick O'Neill from County Longford. He is pictured receiving the award in Teagasc, Ballyhaise from Charlie McConalogue T.D. Minister for Agriculture, Food and the Marine. Also pictured are Tom O'Neill, Sean O'Neill and Michelle O'Neill.

New research

Minister of State at the Department of Agriculture, Food and the Marine with special responsibility for research and innovation, Martin Heydon T.D. announced awards of over €4.2 million for 19 short term research projects that look specifically at emerging policy and strategic needs of the agri-food, forest and bioeconomy sectors.



Teagasc's Head of Environment, Crops and Land Use Programme John Spink (right) and Research Officer Stephen Kildea (left) brief Minister Heydon (centre) on the work that will be carried out on three research projects awarded to Teagasc Oakpark.

PIGS

Signpost programme

The use of pig slurry on cereal crops was demonstrated on the farm of Mattie Moore who is a pig/cereals producer and a Teagasc Signpost farmer. In 2023 he spread slurry on growing winter crops while also grubbing the slurry into the soil before ploughing and sowing in early April for the spring barley crop.

This use of slurry on the growing and emerging crop in the spring time is a move to improve the utilisation of Nitrogen, Phosphorus and Potassium from the slurry. The Moores aim to reduce their overall usage of chemical N, P and K while replacing it with the nutrients in the pig slurry.

Farm Apprenticeship

A Farm Apprenticeship Pig Technician Course was initiated in 2023. An apprenticeship in Pig Farm Management is due to follow in 2024.

Research open days

Managing The Pig Environment Managing Disease Improving, Pre- and Post-Weaning Management And Nutrition, Grower / Finisher Management And Feeding, Meeting Sustainability Challenges were the themes at open days in Teagasc Moorepark and Ballyhaise.

Reducing antimicrobial use

There was a continued improvement in reducing the amount of antimicrobials on pig farms in 2023. Teagasc Pig Development Department developed the pilot database (now used by DAFM); research and advice has resulted in a decrease in anti-microbials from 105mg/kg pig meat produced (in 2020) to 49mg/kg pig meat produced (in 2023).

Staff induction



Pictured at the launch of the new Teagasc 'Pig Staff Induction Module' were: L-R Ciarán Roche, FBD; Aisling Holmes, Teagasc; Ciarán Carroll, Teagasc; Philip O'Brien, pig producer; Tomás Ryan, Teagasc; Amy Quinn, Teagasc; and Pat Griffin, HSA.



Sean Creamer, Ballinamore, Co. Leitrim, winner of the 2023 RDS Teagasc Farm Forestry Award is pictured receiving his award from Minister of State at the Department of Agriculture, Food and the Marine, Pippa Hackett and Stan Lalor, Teagasc Director of Knowledge Transfer. Also pictured is John Dardis, RDS President.

FORESTRY

Forestry Programme 2023 – 2027

To highlight the launch of the Forestry Programme 2023 – 2027 in September, Teagasc organised a Forestry Webinar to promote the new Forestry Programme. It was broadcast from the Teagasc studio in Oak Park. Over 800 registered to attend the webinar which included an opening address from Minister Pippa Hackett.

Afforestation Scheme

Teagasc organised a nationwide series of 20 information meetings nationwide to raise awareness and promote the new Afforestation Scheme 2023-2027. Over 930 attended.

Communications and Media

In Teagasc regions forestry staff conducted over 500 advisory visits, 144 office consultations, addressed almost 2,000 email queries and over 4,500 phone queries.

Google Analytics indicates that the forestry section of the Teagasc website continues to show high visitor numbers with traffic increasing by approx. 37% in 2023.

By the end of 2023, 6,128 people had subscribed to Teagasc Forestry eNews. Ten Teagasc Forestry e-Newsletters were broadcast during 2023. “Your tree

planting companion” is a 60-page publication released in 2023. It brings the reader through the key stages to successfully plant and look after trees, regardless of context, scale, or objectives. This is proving useful for landowners seeking information on matching trees to site types in the context of the NTA and ACRES tree planting measures.

Talking Timber 2023

Talking Timber, Teagasc's popular conifer timber marketing event is taking place today, Tuesday, 23 May in Athlone. This year's theme “Planning towards Sustainable Timber Production” explores opportunities and challenges how forest owners can adapt their management and strategic planning to best sustainably grow, harvest and ultimately sell timber.

Forestry research

Teagasc forestry research continues to focus on the silviculture of broadleaves and conifers, tree breeding and genetics, site classification and forest policy support. It covers many aspects of the life cycle of a forest from seedling to sawdust. Research is carried out in Teagasc research centres in state-of-the-art laboratories and growing facilities and on privately owned farm forests throughout Ireland.

HORTICULTURE

Plant health

To celebrate International Day of Plant Health 2023, the National Botanic Gardens hosted an event, in conjunction with the Department of Agriculture, Food and the Marine, and Teagasc College of Amenity Horticulture to raise awareness on how everyone can play their part to protect plant health from introduced pests.

Integrated Pest Management

Integrated Pest Management (IPM) is a holistic approach used to manage pests in crop production. It considers the whole crop system and is based on a broad range of agronomic, monitoring, physical and biological techniques. It is a suitable pest management system not just in light of the Farm to Fork targets, but as pesticide withdrawals increase and the knock-on effect of reducing chemical diversity often results in resistance.

Teagasc launched a survey on IPM in Irish food horticulture, including potatoes. The survey is part of a wider research project that aims to establish the type and extent of current IPM strategies being used in Irish crop production. The project will examine the impact of pest management practices on the economic and environmental sustainability of Irish horticulture. It comes at a crucial time for growers, given the target of a 50% reduction in chemical use by 2030 included in the Farm to Fork Strategy and goals related to crop diversification in the national Climate Action Plan 2023.

Mechanical Weed Control

There is a growing need for non-chemical weed management tools for sustainable crop production. Significant developments have been taking place in the technology of weed control systems amongst some of the leading manufacturers. This event at Teagasc Oak Park provided an opportunity to see first-hand, live demonstrations on mechanical weed control in vegetable crops.



Teagasc staff pictured at the Teagasc horticulture 'Planting Knowledge, Cultivating Growth' exhibit at Bloom 2023. The Teagasc staff pictured from left to right are: Ewen Mullins, Brian McGuinness and Casey Ormsby (front row); Yvonne Maher, Deirdre Walsh, Dónall Flanagan and Grace Kiernan (middle row); Chris Heavey, Orla O'Halloran, Dermot Callaghan, John Mulhern, James Brady, Paul Butler, Eamon Kealy and Oliver Sheridan (back row).

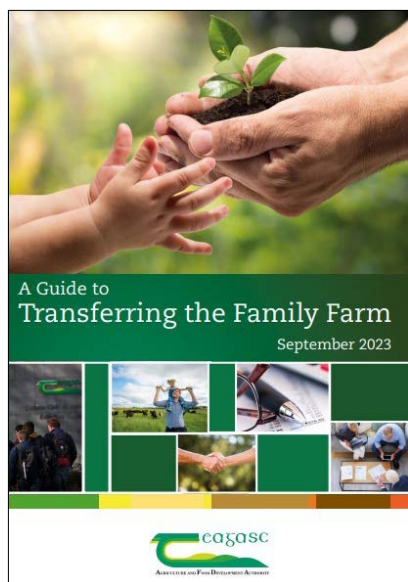
Artificial Intelligence

Tyndall National Institute, in partnership with Teagasc, is conducting a collaborative European research project named 'HALY.ID', which aims to monitor and sustainably manage *Halyomorpha halys* (HH) the brown marmorated stink bug, a highly invasive insect species. The project is using drone technology and Artificial Intelligence to automate the monitoring process, which was traditionally managed manually.

Halyomorpha halys (HH), is an invasive shield bug native to East Asia, which has been detected in Europe with sporadic transient identifications in the UK since 2018. This is a worrying development as the insect can cause malformed fruit when feeding, and potentially damage significant amounts of tree fruit crops, as well as some vegetable and arable crops.



Transferring the Family Farm



Pictured at Teagasc Head Office launching the series of Transferring the Family Farm Clinics were James McDonnell, Teagasc Farm Management Specialist and Professor Frank O'Mara, Teagasc Director with Tom Curran, Head of Advisory Services, Teagasc; and Teagasc Regional Managers, Richie O'Brien, Waterford/Kilkenny; Majella Moloney, Limerick/Kerry; Pat Clarke, Galway/Clare; Tom Kellegher, Roscommon/Longford; Grainne Hurley, West Cork and Con Feighery, Westmeath/Offaly/Cavan/Monaghan. Pic by Karl McDonough Photography

Securing Farmer Health and Safety and wellbeing

Health & Safety

In 2023, 16 fatal farm accidents occurred, this was an increase on the previous year (13) but a reduction on the five – year average (17.8).

Research

Teagasc is Project Leader of a €4.8 million EU Horizon health and safety project (acronym Safe Habitus, 2023 is year one of a four year project. During 2023, two PhD studies and one Masters were completed as part of DAFM Funded grant (Acronym Be Safe). Fourteen peer reviewed scientific papers on health and safety in agriculture with Teagasc co-authors were published.

Knowledge Transfer

A Farm Health and Safety module is delivered to all Teagasc students pursuing the Certificate in Agriculture and 3rd level courses (total student number circa 6,000).

Thirty-six Teagasc staff have been trained to deliver Half-day courses for adult farmers on completion and implementation of the Farm Safety Risk Assessment Document required for DAFM TAMS3 grant draw-down.

A series of Media Press Releases (24), Teagasc Daily articles (36) as well as articles in the Teagasc magazine, Today's Farm, and Newsletter, Social Media and Webinars were published.

Major Health and Safety exhibits were held at Teagasc National Dairy, Sheep and Tillage Events.

The Teagasc Health and Safety unit co-operated with Department of Agriculture, Food and the Marine in developing an eLearning course on livestock safety for farmers participating in the Suckler Carbon Efficiency Programme (SCEP).

A video entitled 'Managing Health and Safety' was produced in 2023 adding to seven completed in 2022 to complete the series. The videos were produced by Teagasc in association with FBD Insurance and the Farm Safety Partnership.

Department of Agriculture, Food and the Marine allocated ca. €0.5m to Teagasc for the procurement of 11 Bovine Cow Calving Simulators and 11 Bovine Injecting Simulators. These will enhance livestock safety training in the agriculture sector.



Minister Martin Heydon, T.D. talks to Shirley Stanley, (Errill), Portlaoise, Co. Laois about the importance of keeping children safe on the farm at Sheep 2023 a major sheep industry event that took place at Gurteen Agricultural College. Also in the picture are John McNamara and Francis Bligh Teagasc Health and Safety specialists.

Enhancing human capital (Education)

In 2023 Teagasc launched new Apprenticeship Programmes in agriculture:

The programmes are:

- Farm Technician (Higher Level 6) – 2 years
- Farm Manager (Ordinary Level 7 Bachelor Degree) – 2 years



Then Minister for Further and Higher Education, Research, Innovation and Science Simon Harris T.D. announced the launch of two new farming apprenticeships at Teagasc Oak Park.



Farm Manager Apprenticeship: Lisa Clark

Farm manager apprentice: Lisa Clark said: “I feel the farm manager apprenticeship teaches you how to work on a farm and raise livestock to the best of your ability but also to step out of your comfort zone by taking on more responsibility. It also teaches you to build a viable farm business by taking on board the legal, financial and economical commitments needed to run a successful dairy farm.”



Employer Paidi Kelly (left) says he finds the process of mentoring Farm Technician apprentices like James Ryan to be very enjoyable.



Minister of State with responsibility for Farm Safety at the Department of Agriculture, Food and the Marine, Martin Heydon T.D. announced the launch of 11 calving simulators and 11 injecting simulators for use in Teagasc agricultural colleges and research and innovation centres. Minister Heydon is pictured with Anne-Marie Butler, Head of Education, Teagasc; Jonathan Keneally, Technician, Teagasc Clonakilty Agriculture College; and Professor Frank O'Mara, Teagasc Director

Danny Doyle is the Teagasc/FBD Student of the Year for 2023

Danny Doyle from Rathangan, County Kildare is the overall winner of the Teagasc / FBD Student of the Year 2023 award. The Awards were presented by the Minister for Agriculture, Food, and the Marine, Charlie McConalogue T.D. in County Laois on Tuesday, 21 May.

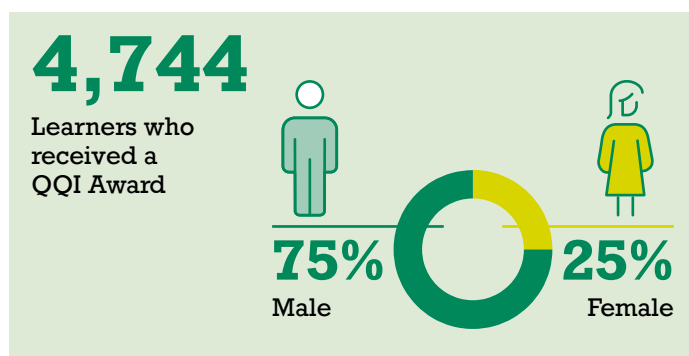
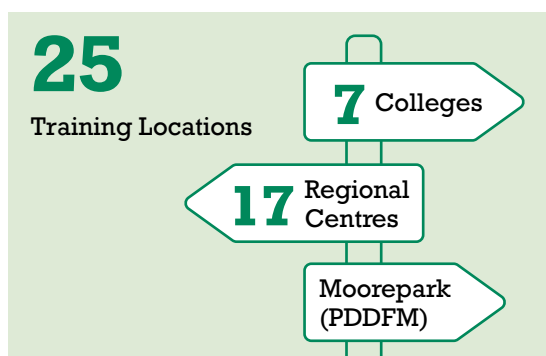
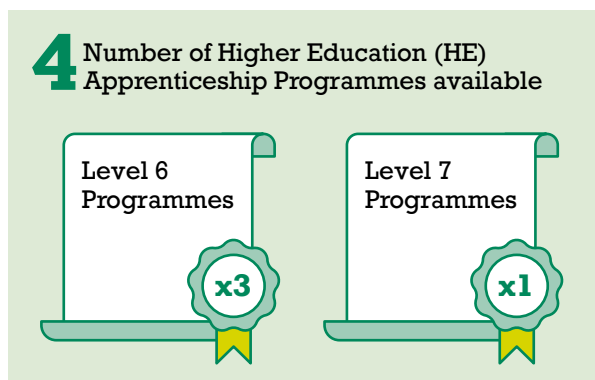
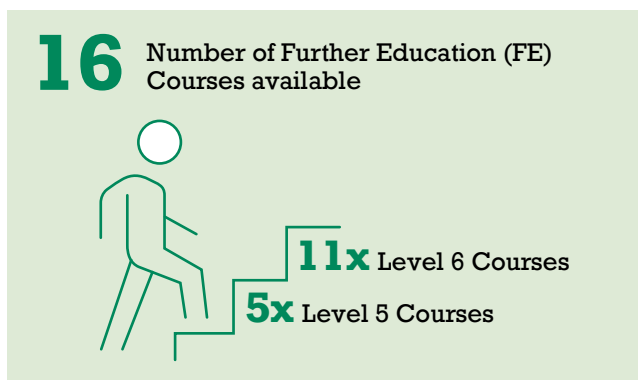
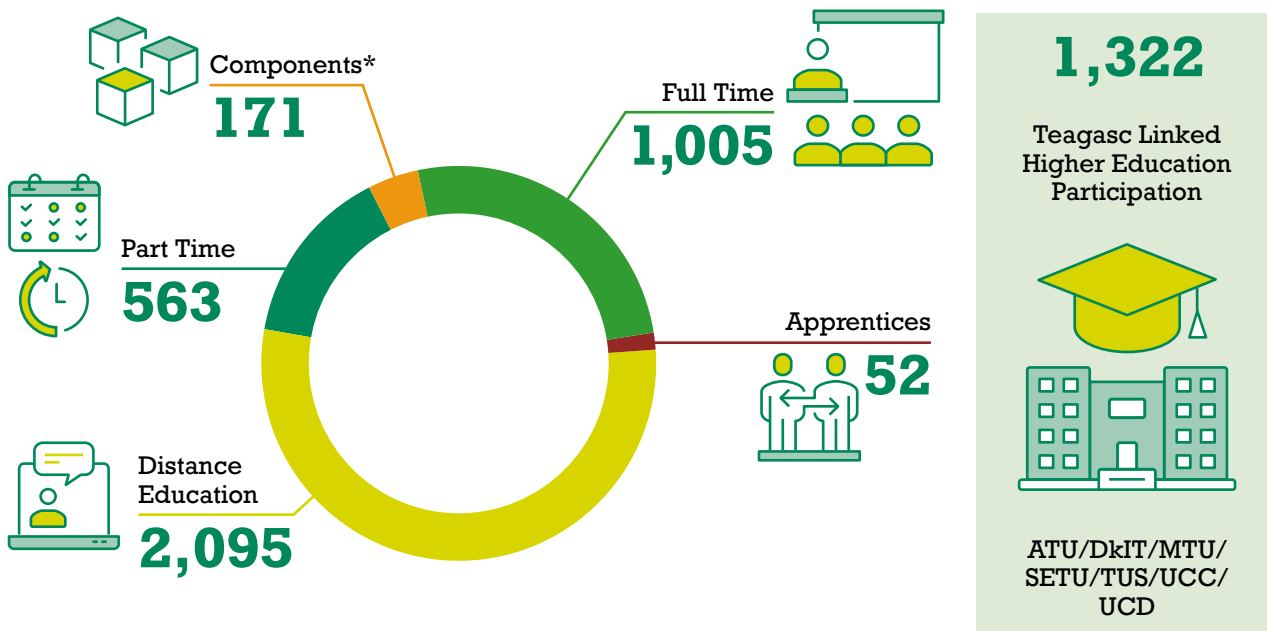
The awards, sponsored by FBD, were presented to the top graduates of Teagasc Level 6 agriculture, horticulture, equine and forestry training programmes in 2023.

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.



Enhancing human capital (Education)

Teagasc Education Delivery 2023



*Components refers to students who take a module within a course.



Pictured signing an educational agreement with Teagasc from (L to R): Minister for Agriculture, Food and the Marine Charlie McConalogue T.D.; Professor Frank O Mara, Director Teagasc; H.E. Vincent Guérend, French Ambassador to Ireland and Marc Fesneau, French Minister of Agriculture and Food Sovereignty.

Supporting Rural Development

Organic farming

With a substantial increase in the payments in order to increase participation in organic farming to contribute to national Climate Action targets, 2,000 farmers entered the Organic Farming Scheme in 2023. This necessitated a huge effort to deliver QQI hour 20 Organic Farming Principles courses to the new entrants.

The spring and autumn series of 'Let's Talk Organic' webinars continued, along with regional Organic Farm Walks and the publication of the quarterly Organic e-Newsletter. Knowledge Transfer was expanded through a number of sectoral collaborations.

The five-year national Growing Organics programme monitors key economic and environmental metrics on 12 working demonstration farms, in collaboration with the Organic Unit DAFM, Teagasc, National Organic Training SkillNet (NOTS) and the Agricultural Consultants Association (ACA) also collaborated to produce a library of videos on organic farming.

Funding was secured through the DAFM Promotion of Organics call to carry out a study on the role of Producer Organisations in Ireland. The DAFM Stimulus call yielded funds for the Growing Resilient Organic Farming Systems (GroFarmS) project, which will research organic beef and sheep finishing systems in Teagasc Grange, Athenry

and on the Kildavin farm at Johnstown Castle which is in-conversion to organics.

The project will collect data for economic and environmental sustainability indicators for organic farms and will also include work with European partners to develop and apply new Knowledge Transfer methodologies and materials.

Organic beef research

The increase in organic new-entrant numbers will inevitably lead to an increase in the availability of organic beef on Irish farms. Traditionally, up to 30% of this organic beef has 'leaked' into conventional systems.

One of the key elements of the Department of Agriculture, Food and the Marine and Teagasc funded Gro-FarmS project, which is being undertaken in conjunction with UCD, is to develop clear guidelines for efficient and profitable organic beef finishing systems.

Key considerations are: optimising lifetime growth rates to reach target carcass weight / fat scores as early as possible (i.e. 'young' slaughter age); producing adequate forage of sufficiently high quality in the absence of inorganic fertilisers; minimising the importation of supplementary concentrate feeds; and maintaining the highest levels of animal health and welfare with minimal use of antimicrobials.

The 40ha Kildavin farm in Johnstown Castle in Co. Wexford will prepare for organic conversion in the summer of 2024, before the first influx of organic weanlings arrive on the farm in the autumn time. These weanlings will be carried through to on the farm. Both early and late maturing beef breeds will be included in the trials.

The Gro-FarmS project will also evaluate varying finishing diets and finishing ages on the Teagasc Grange Animal & Grassland Research Centre. The combined research at both the Grange and Kildavin sites will help to develop clear guidelines as to the most efficient organic beef finishing systems to enable organic farmers adopt these practices with confidence.



Roscommon organic beef farmer Jim O'Connor and Teagasc advisor Enda O'Hart.

Equine

Equine specialists delivered a variety of educational offerings in 2023. A total of 150 adult learners benefited from Blended Learning Courses that include virtual classroom and on-farm workshops on the topics of Equine Breeding, Foaling and Neonatal Health, and Equine Health.

An educational tour to Belgium and Holland over five days in September was attended by 39 breeders and producers. The attendees gained valuable insights across a wide range of topic areas, visiting stud farms, production yards, and veterinary establishments.

The 'Young Breeder Training Programme', is a joint initiative between Teagasc and Horse Sport Ireland', and funded by DAFM, hosted 11 events for almost 150 attendees on high quality demonstration farms across the country.

Through harnessing expertise within the sector, these events provide a solid education for 14-30 year olds on equine traits that are successful both in the sports of show-jumping and eventing, and that are in turn highly valued by the marketplace.

The 'Let's Talk Equine' webinar series which ran throughout the year addressed a wide variety of topics including nutrition, breeding and production, markets and marketing, equine health, with approximately 2,700 viewers availing of the information in these webinars over the course of 2023.



Young Breeders Programme participants visiting the Army Equitation School at McKee Barracks

Energy

Teagasc Rural Development collaborates with various programs to advance renewable technologies in Irish agriculture. Key initiatives include participation in the Energy and Farm Diversification show and engagement in EU Horizon projects and EIP Agri Operational groups.

Teagasc has produced 21 fact sheets, organised workshops, seminars, and webinars, advising farmers on renewable energy options and supporting industry integration of technologies such as Solar PV and biomethane.

These supports empower farmers with knowledge and facilitate industry transition to sustainable practices, enhancing energy efficiency and fostering renewable energy adoption.

Rural Development

Teagasc Rural Development collaborates extensively with external organisations to support rural development across diverse areas. Over 50 fact sheets have been published on diversification opportunities, including rural tourism and artisan food production.

Collaborations with organisations such as Citizens Information expand agricultural supports content online. The Farm Business Options program aims to equip farmers with skills to turn ideas into viable businesses, offering mentorship, business plan assistance, and connections to supportive agencies.

Workshops feature successful guest farmers, Teagasc specialists, and farm visits, enhancing learning and networking opportunities for participants.

Succession

The age profile of farmers continues to increase, even though there are government tax incentives and EU CAP incentives. Teagasc supported farming families in 2023 by offering six Transferring The Family Farm events where they had the opportunity to talk to experts on a one to one basis.

Supporting each event was a team of local solicitors, accountants, and Teagasc advisors to answer queries in confidence. Also present at these events were be a Mediator, a profession often used by farming families to develop a succession plan in difficult circumstances. The government was represented by Citizens Information services. For those interested in forming Department of Agriculture, Food and the Marine (DAFM) registered farm partnerships, staff from DAFM were also present.

Tourism

Teagasc Rural Development together with the Irish Self Catering Federation hosted an Agritourism conference at Teagasc, Ashtown to highlight opportunities for farm families in developing an on-farm tourism business.



Pictured from (L to R): Máire Ní Mhurchú, Chair of Irish Self Catering Federation; Barry Caslin, Rural Development Specialist, Teagasc and Minister Pippa Hackett, Minister of State at the Department of Agriculture, Food and the Marine.

Supporting International Agricultural Relations and Development

Teagasc is committed to supporting Ireland's ambitions to become a world leader in sustainable food systems as set out in Food Vision 2030. We are proactive in our support for a "whole of government" approach aiming to strengthen agricultural development and reduce hunger and undernutrition in developing countries.

Teagasc Director Professor Frank O'Mara made significant contributions to two major FAO events held in Autumn 2023 - the FAO Global Conference on Sustainable Livestock Transformation and the FAO World Food Forum (Science and Innovation for Climate Action).



Teagasc Senior Research Officer, André Brodtkorb supported an Irish Trade Mission to Malaysia and the Philippines, lead by Minister Martin Heydon. André outlined how Teagasc supports the Irish agri food industry and summarised the key nutritional qualities of pasture-based dairy.

During 2023 a number of international guests visited Teagasc in Oak Park including the Indian Ambassador to Ireland. We also hosted visiting researchers from VNUA, Viet Nam and supported Carbery and Asia Matters in a high level discussion on Ireland's Role in Global Food Sustainability and Innovation

Agricultural Development Projects – Eritrea, Kenya and Tanzania

Teagasc continued its efforts to "Connect People and Support Climate Action with Partners in Africa" through our leadership of three dairy development projects in Kenya, Tanzania and Eritrea. During 2023 we worked closely with a number of partners including KALRO, TALIRI and NARI (dairy research institutes in the respective countries).

Project highlights included strengthening the resilience of the various forage based feeding systems for dairying. Project funding is provided through Irish Aid / Embassy of Ireland and EU DeSIRA sources.



Teagasc Moorepark researcher Padraig French with local dairy farmer and Irish embassy representative in Tanga, Tanzania.

Teagasc was also delighted to see FBD provide some financial support for Baraka Agricultural College – a project partner in the Dairy Kenya Ireland Project in 2023.



Funding and Collaborations

Teagasc UCC International Agriculture Student Development Programme

Teagasc and University College Cork (UCC) have come together to provide a new support programme for students from a number of agriculture focussed universities and institutes in developing countries. This new initiative is co-ordinated through the "Teagasc UCC International Agriculture Student Development Programme" and supports the delivery of the Sustainable Development Goals (in particular SDG 13 – Climate Action). It will provide direct education, mentoring and support for an initial tranche of three Walsh Scholar PhD students from East Africa who will be registered with UCC, and will be co-supervised by Teagasc staff in Moorepark.

Teagasc continued to work as a partner in Sustainable Food Systems Ireland (SFSI) and as a member of IFIAD. We work closely with the Department of Agriculture Food and Marine and the Department of Foreign Affairs / Irish Aid along with a number of embassies based in Dublin and around the world.

During 2023 we co-operated on a number of other development projects in countries including Viet Nam, Cyprus and Zambia and hosted a number of delegations and visitors from outside the EU including the Ambassador from Cuba to Ireland who visited Teagasc Oak Park.



Pictured for (L to R): Professor Pat Dillon, Teagasc Director of Research, Eskender Tesfay, National Agricultural Research Institute (NARI), Eritrea, Emer Kennedy, Teagasc Enterprise Leader Moorepark, Samson Mwangi, Kenya Agricultural and Livestock Research Organisation (KALRO), Kenya, Professor Frank Buckley, Professor of Agricultural Science, University College Cork and Paul Maher, Teagasc Head of International Relations and Corporate Strategy.

Teagasc and Team Ireland working together to support International Relations and Development during 2023

Pictures below clockwise: Minister McConalogue meeting with Dr Nziku, Tanzania, Dr André Brodtkorb supporting an Irish Trade Mission to Malaysia and the Philippines, headed by Minister Heydon, Minister Hackett visiting the Dairy Kenya Ireland Project and Dr AnneMarie Butler and Dr Edna Curley visiting a small Irish led NGO – "Development Pamoja", Kenya.



Farm Incomes in 2023

A high production cost environment has dominated agriculture in the last couple of years. In 2023, some cost items began to decline from their peak, but others continued to increase. Throughout 2023, farmers experienced some decline in the cost of fertilisers, but several other cost items, such as concentrate feeds, energy, contracting, and overheads, either showed little movement or increased further. Overall, there was a slight increase in production costs compared to 2022.

In 2023 there were significant drops in some farm output prices, especially for milk and cereals. As a result, Dairy and Tillage farm incomes fell sharply in 2023. The prices for milk and cereal crops fell dramatically, both down by close to 30% in comparison to the previous year's levels. Lamb prices were marginally lower in 2023 than in 2022. In contrast, there were modest price increases for weanlings and finished cattle. Weather conditions created difficulties for tillage farmers at various points in the season, leading to lower yields in 2023 compared to the preceding year. On other farms, there was an early end to the grazing season due to much heavier than normal rain in the second half of 2023.

Persistent high production costs and volatility in output prices in 2023 had a diverse impact on farm incomes across the various farm systems. For dairy and tillage farms, the substantial decrease in milk and cereal prices, alongside lower cereal and milk yields, led to much lower incomes in 2023 compared to the previous year.

On the other hand, drystock farms experienced smaller movements in farm incomes, with cattle and sheep farm incomes down slightly in 2023 compared to 2022.

Dairy and tillage farms saw the most significant drop in average family farm income in 2023 with incomes 60% to 70% lower than the record income levels achieved in 2022.

On dairy farms this dramatic income reduction was driven mostly by lower milk prices and a premature end to the milking season caused by poor returns and heavy soil conditions due to excess rainfall. While dairy cow numbers continued to rise, in 2023 the average milk yield fell for the second year in succession.

The decrease in tillage farm income in 2023, was partly driven by poor crop yields which were particularly affected by bad weather. Sharply lower cereal prices were the result of a generally good harvest globally. The extent of the decline in tillage farm income was farm-specific, with many farms seeing reductions of 60% to 70%. Support payments on tillage farms helped to buffer the drop in income associated with lower tillage margins.

Cattle rearing farms experienced a drop in income, which is a particular concern given that the system has the lowest income of any of the main agricultural activities in Ireland. Weanling prices were up, but production costs remained high. The introduction of the Suckler Carbon Efficiency Programme (SCEP), National Beef Welfare Scheme (NBWS), and payments from participation in the Agri-Climate Rural Environment Scheme (ACRES) provided important support to incomes for farms in this system.

Cattle other (mainly finisher) farms also experienced a drop in incomes in 2023, with higher cattle prices being offset by a drop in the volume of cattle disposals. Similarly, there was a drop in sheep farm incomes in 2023 compared to the previous year.

Taking into account the relative share of the different farm types across the country, overall income in agriculture was down sharply, but this was mainly driven by the large reduction in incomes earned by dairy and tillage farms.

General inflation in 2023 of over 6% remained well above the ECB target level of 2%, which meant that inflation continued to take a bite out of farm incomes in real terms.





Strategic Goal 2

To enhance the production and processing of safe, nutritious and flavoursome foods in line with sustainable circular bioeconomy principles.

- Processing Safe, Nutritious and Flavoursome Foods
- Providing Scientific Leadership in the Development of an Agri-food Sustainable Circular Bioeconomy (SCB)

Grass-fed milk

Irish grass-fed milk contains more beneficial nutrients than milk from conventional indoor-feeding practices. Researchers from Teagasc and Food for Health Ireland (FHI) have discovered that dairy cows who operate on an Irish grass-fed system, produced milk with higher percentages of omega-3 and conjugated linoleic (CLA) fatty acids compared to cows fed medium and low proportions of grass.

Multi-species swards

In Ireland, cows generally graze upon ryegrass monocultures. Multispecies swards offer benefits by increasing biodiversity and reducing costly chemical inputs through natural nitrogen fixation. Current Teagasc research is investigating the nutritional and techno-functional consequences within cheese when applying multispecies grazing. Potential differences in cheese made from multispecies systems need to be better understood in terms of dairy processing and potential health impacts.

Once-a-day milking

Until recently, limited work had been done to explore how dairy products are affected by milking frequency, but research by Teagasc into once-a-day milking (OAD) has shown no negative impact on cheese quality. OAD results in lower overall milk volume and milk solids yield than twice-a-day milking (TAD), yet interest in OAD systems is still growing. Approximately 200 dairy farms are operating OAD milking on a full-time basis in Ireland, and this number is expected to increase.

Listeria in Food

Over 100 scientists and food industry stakeholders gathering at Teagasc Food Research Centre, Ashtown in May for the 2023 Symposium on *Listeria monocytogenes* in Foods: Recent Advances and Outstanding Questions.



L-R: Professor Fabian Commichau (University of Hohenheim, Germany), Kaye Burgess (Teagasc), Achim Schmalenberger (University of Limerick), Professor Birgitte Kallipolitis (University of Southern Denmark), Professor Olivia McAuliffe (Teagasc), Ana Allende (Spanish National Research Council) and Professor Conor O'Byrne (University of Galway).

Food Science and Technology Conference

Over 120 scientists gathered at Teagasc Food Research Centre, Ashtown, for the 51st Annual Food Science and Technology Conference. The conference was co-hosted by IFSTI, the Institute of Food Science and Technology of Ireland, and Teagasc, on the theme of “Food Systems in a Changing World-the Science, Challenges and Opportunities”.

Microbiome

An international webinar celebrating the completion, and the innovative outputs, of the EC H2020-funded MASTER (Microbiome Applications for Sustainable food systems through Technologies and Enterprise) project was delivered in May. The project was led/co-ordinated by Paul Cotter of Teagasc. Attendees from 48 countries joined online. Presentations (including three from Teagasc by Paul Cotter, Fiona Brennan and Stuart Kirwan), and the panel discussion were recorded for further promotion of the project.

Providing Scientific Leadership in the Development of an Agri-food Sustainable Circular Bioeconomy (SCB)

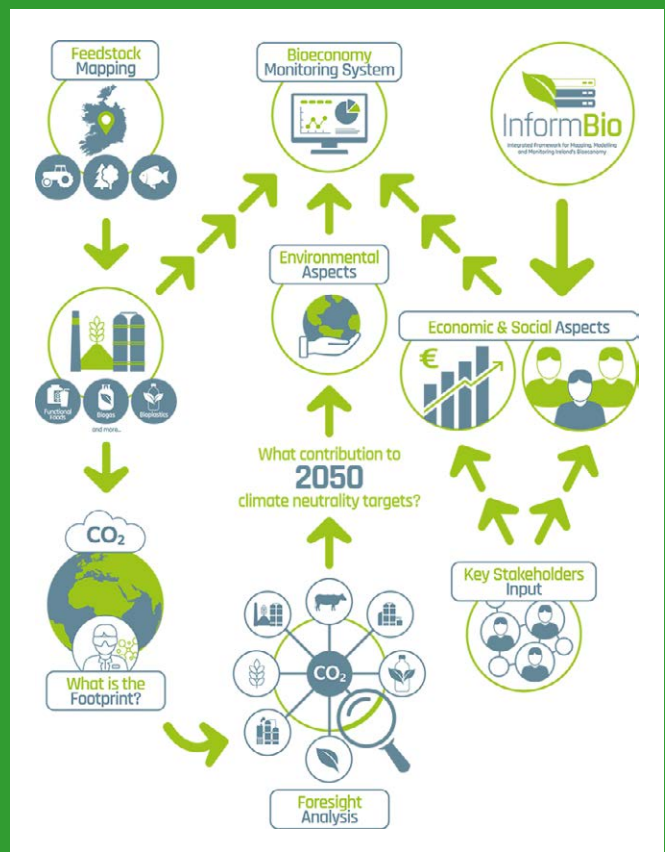
StoryMaps

Teagasc led the creation of a series of interactive StoryMaps to accompany a range of events organised as part of the Bioeconomy Ireland Week 2023. Bioeconomy Ireland Week is an annual event bringing together stakeholders from government, industry and research to highlight developments in the Irish bioeconomy.

As part of the VALPROPath project, Teagasc led the development of an interactive story map to identify, capture and communicate the gaps in the value chain for plant-based protein in Europe. This work has enabled solutions to be identified and addressed in a more efficient, holistic and integrated manner. The tool has been used by the European Commission to inform research funding call texts, in line with the forthcoming EU protein strategy.

Reducing food waste

Teagasc secured funding for a collective effort dedicated to reducing food waste linked to marketing standards. The project, known as ROSETA, delves into the intricate relationship between marketing standards and the disposal of perfectly edible food. Teagasc activities are focused on waste in the horticultural sector in Ireland with work undertaken to analyse existing standards, conducting pilot experiments, and providing insights for policy recommendations to revise or design standards and prevent food waste.





The four year IMPRESS project, co-funded by Horizon Europe officially began earlier this summer and brings together a multidisciplinary 14-member consortium of academic and research institutes, business associations, non-profit organisations and SMEs from seven countries. The partners will work together to address critical sustainability challenges faced by the marine and freshwater sectors, spanning from sea to shelf.

IMPRESS

Building zero-waste, sustainable, aquatic food value chains is the main goal of the recently EU-funded IMPRESS project launched in 2023. To tackle growing demand for aquatic food in the face of overfishing, and growing concern about waste production and environmental damage, innovative solutions that address the entire value chain are necessary.

IMPRESS aims to unlock opportunities that entice the business community to adopt more circularity and zero-waste approaches, and educate consumers to adopt new eating habits. The project will address two key areas: the potential of underused and low trophic species; and solid and liquid waste streams from fish processing.

Professor Brijesh Tiwari, project coordinator from Teagasc, says: "The IMPRESS project presents an unprecedented opportunity to drive sustainable practices and create value across the marine and freshwater sector, while addressing pressing environmental and societal challenges.

"It will unlock the potential of low trophic species (those at the bottom of the food chain), such as roach, sprat and lumpfish, to create new food products and non-food products (biopesticides, biofertilisers, fish feed). The project will go even further to enhance the zero-waste approach by using waste water streams and solid by-products of commercial processing to extract high-value ingredients and test the potential of these nutrient-rich waters to support duckweed and microalgae growth.

Empowering female producers

At an online event in February entrepreneurs and academics from Ireland, Turkey and Greece exchanged experiences on challenges and solutions to female entrepreneurship. The focus was on female participation in short food supply chains (SFSC). Such chains are seen as having a role in enhancing the sustainability of our food system as well as supporting rural development. The event, hosted by Teagasc and Munster Technological University (MTU) as an AgroBRIDGES project event, was entitled 'Empowering female SFSC producers in Ireland and Europe'.

Upcycling

Upcycled Food Foundation Kamaljit Moirangthem, a Teagasc Research Leader fellow, is one of eight recipients worldwide of the Kerry Upcycled Food Foundation Fellowship for 2023. The foundation is dedicated to preventing food loss and waste across the entire supply chain.

Kamaljit, a Marie Skłodowska Curie Fellow at Teagasc and the University of Helsinki in Finland, says: "Upcycling means repurposing side streams or waste that was previously not destined for human consumption. I am looking at the role of bioprocessing in upcycled food development – in other words, using microbes or microbe-derived aids, such as enzymes, to make upcycled food or ingredients. I'm also looking into increasing consumer acceptance of upcycled foods."

Processing Safe Nutritious and Flavoursome Foods

National Prepared Consumer Food Centre

The National Prepared Consumer Food Centre (NPCFC) worked with 97 companies in 2023, providing services in new product development, analysis & testing, training and technical support. Projects completed in 2023 have resulted in the establishment of new food businesses, launch of innovative new food and drink products and strengthened the creation of jobs within the wider food industry in Ireland.

The NPCFC currently supports over 50 National and European funded research projects across the wider Teagasc Research Programme and plays a pivotal role in the delivery of these projects through access to equipment and knowledge transfer.

Moorepark Technology Limited (MTL)

In 2023 Moorepark Technology Limited (MTL) enabled product development, process optimisation and R&D programmes for Industry and research performing organisations. Due to increasing customer demand, over the last eight years the company has almost quadrupled to almost €4m turnover with over 10% trading profit.

The company now has up to 100 customers who regularly use the facilities annually, of which 17 came from abroad in 2023. The standards required by customers varies, from students performing trials and small start-up companies learning about technologies, to larger companies who carry out many functionality trials.

MTL now has a customer base ranging from research projects and small start-ups to large multinational companies, including world leading beverage and snacking companies. This is only possible as the facility is approved by the Irish Department of Agriculture, Food and the Marine for food production and is ISO 22000, FSSC, Halal, Kosher and Organic trust, BRC and is an FDA (US Food and Drug Administration) approved site. The company will continue to build on its current trading position by promoting high quality technology services to the food industry.

Meat Technology Ireland

The MTI Phase II programme was underway in 2023 following a recruitment drive in 2022. In support of the sustainability priority, Greenfeed units have been capturing methane data at Teagasc facilities and industry-member farm collaborations. A series of MTI reports on sustainable packaging, regulation and the status of recycling in Ireland have been completed. In support of the Digitalisation priority, MTI researchers have completed a Factory 4.0 review of global beef and lamb processing, in addition to publishing a book chapter.

Sheepmeat quality trials have been prioritised in Phase II with baseline trials underway in 2023. Meat & Health research continues in Phase II with the first publications emerging in 2023. The centre secured additional funding in EI, DAFM and SFI research/equipment calls in 2023. MTI hosted its second annual conference to date in November and was well attended by participating industry members, stakeholders and researchers (pictured below).



Teagasc Food Innovation Gateways 2023

The annual Food Innovation Gateways event took place at the Teagasc Food Research Centre, Moorepark, Fermoy, County Cork. The theme of 2023's event was "Building a Sustainable Food System - The Role of Bioprocessing and Fermentation Technology".

At the Gateways event Teagasc Moorepark launched a Bioprocess Innovation Suite – a one-stop shop for bioprocess development, optimisation and scale-up. Bioprocessing uses living organisms such as bacteria, yeast, fungi or animal cells to generate a desired end product.

It is key to the food, pharmaceutical and energy sectors and several emerging industries and technologies, including the production of renewable biofuels such as biodiesel, therapeutic stem cells and new vaccines. It has also been identified as a key technology in helping to develop solutions to sustainability challenges in the food sector.



In the food industry, the process is often referred to as fermentation. The end product can be a consumer food product, such as yoghurt or cheese, or a compound that is produced by an organism and then purified, e.g. lactic acid, antibiotics or vaccines. Producing these products or compounds at scale requires very carefully controlled growth conditions for the organisms, and specific instrumentation is needed for that purpose.



Pictured at the Gateways event (L-R) : Siobhan Jordan, Teagasc, Professor Olivia McAuliffe, Teagasc, Professor Trine Kastrup Dalsgaard, Aarhus University, Denmark; Teagasc Director Professor Frank O'Mara, and Antonio Lourenco (Teagasc). Antonio is demonstrating a DNA sequencer from the Teagasc Sequencing Centre.



Strategic Goal 3

To provide science-based evidence and technologies to enable Ireland meet commitments in regard to gaseous emissions, water quality and diversity.

- Mitigating Gaseous Emissions
- Pipeline Research
- Signpost Farms Programme
- Adaptation to Climate Change
- Improving Water Quality
- A more biodiverse agriculture

Mitigating Gaseous Emissions

Teagasc MACC 2023

A new Teagasc Marginal Abatement Cost Curve (Teagasc MACC 2023) to assist farmers and the Agriculture industry to reduce Greenhouse gas emissions was launched in July by the Minister for Agriculture, Food and the Marine Charlie McConalogue T.D. in Dublin.

The Teagasc MACC 2023 looks at three scenarios with differing levels of agricultural activity, based on different projected livestock numbers to 2030. The three potential scenarios all have lower livestock numbers in 2030 compared to the 2022 herd, and are based on the influence of existing policies and future market forces.

The mitigation of Greenhouse gases under these three agricultural activity scenarios are then assessed based on two different uptake pathways outlining a high (Pathway 1), and a very high (Pathway 2), rate of adoption of mitigation measures by farmers.

AgNav

A collaboration agreement was signed by Teagasc, ICBF and Bord Bia to develop a new sustainability digital platform, with the support of the Department of Agriculture, Food and the Marine. The new platform is called AgNav and a pilot was showcased to thousands of farmers at the Teagasc National Dairy Open Day in Moorepark, Fermoy, in July.

AgNav provides farmers with accurate and verifiable farm specific figures to support decision making on their farms to help meet agriculture's Climate Action. AgNav has been trialled with Teagasc advisors and Signpost demonstration farms, and is being used by the new team of Teagasc Signpost Advisors, working with farmers to develop action plans for individual farmers to mitigate their Greenhouse gas emissions.



Pictured at the launch of the new MACC curve from (L to R); Professor Frank O'Mara, Teagasc Director; Deirdre Ryan, Director of Origin Green, Bord Bia; Charlie McConalogue T.D. Minister for Agriculture, Food, and the Marine; Suzanne Campbell, Panel Facilitator and author and food/farming journalist; and Liam Herlihy, Chair of Teagasc Authority.

Reducing emissions from cattle and sheep

Ministers McConalogue and Heydon announced a world-first scientific breakthrough that can enable the reduction of methane through animal genetics. This will be possible because of the publication of methane evaluations which will enable breeding programs to reduce daily methane emissions in beef cattle.

The research to underpin this is a result of a €3 million project 'GREENBREED', funded by the Department of Agriculture, Food and the Marine. The project has led to the publication of the world's first national genomic evaluations for methane emissions in Irish beef cattle. The project includes collaborative research involving Teagasc, Southeast Technological University, Munster Technological University and ICBF.

Minister Martin Heydon T.D. launched new breeding values for sheep aimed at reducing methane emissions and supporting delivery of climate emission reductions at the Sheep2023 event in Gurteen Agricultural College, County Tipperary. Speaking at the event, Minister Heydon highlighted, the important scientific breakthrough can enable the Irish sheep industry to reduce methane output through animal genetics.

Feed additives

At the Teagasc stand at the National Ploughing Championships Minister for Agriculture, Food and the Marine, Charlie McConalogue T.D. and Minister of State with special responsibility for research and innovation, Martin Heydon T.D. announced new scientific advancements in feed additives to reduce livestock methane. The additives were tested in indoor beef systems but have the potential for use in pasture-based systems. The research also found significant potential for slurry additives to inhibit and reduce emissions from manure storage.

The significant findings come from the project 'Meth-Abate' which is supported by €1.248 million of funding from the Department of Agriculture, Food and the Marine and the Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland.

On-farm feed additive project

In 2023, 18 Signpost dairy farmers took part in an on-farm project feeding 3-NOP (Bovaer), a methane reducing feed additive led by Hazel Costigan, Teagasc Moorepark.



Pipeline Research

Teagasc Walsh Scholarships Programme

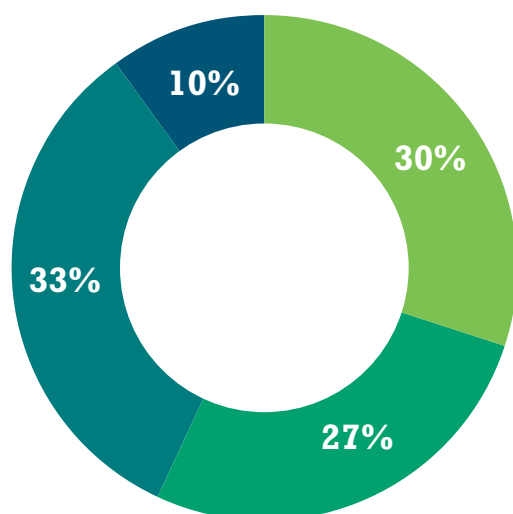
The Teagasc Walsh Scholarships Programme (WSP) is a postgraduate research training and development programme. Participants are full-time students registered with a Higher Education Institute (HEI), in Ireland or abroad, and are hosted at Teagasc while pursuing their PhD or research master's studies.

The WSP provides graduates with an opportunity to pursue PhD or research master's degrees in agriculture, food, environmental science, agri-food economics, rural development, horticulture, forestry and other related disciplines.

The postgraduate students are predominantly hosted at one of Teagasc's seven research centres and carry out their research with established research teams under the supervision of Teagasc and academic staff. The students participating in this programme are referred to as Walsh Scholars.

On 31 December 2023 there were 227 active research Walsh Scholars in Teagasc, an increase from 212 in 2022. The corresponding figures for research in previous years were: 243 (2021), 228 (2020), 216 (2019), 259 (2018), 234 (2017), 248 (2016), and 255 (2015).

Figure 2 shows the distribution of Walsh Scholars across the four Teagasc research programmes. Approximately one third in each of the large programmes, AGRIP, CELUP and Food, and 10% in REDP



- Animal & Grassland, Research and Innovation Programme
- Crops, Environment and Land Use Programme
- Food Programme
- Rural Economy and Development Programme

Figure 2: Distribution of Walsh Scholars across Teagasc programmes 2023 (%)

The 227 Walsh Scholars are registered with 25 different universities and research institutions, with 194 Walsh Scholars registered with universities in Ireland, 14 with UK institutions and 19 with institutions in Germany, Netherlands, Canada, Australia and New Zealand.

In 2023 a new strategy document was prepared based on a series of workshops and expert input.

The strategy includes a vision for the Programme, a value proposition, detailed implementation and financial resources plans.

The strategy was developed in 2023 and a strategy document and implementation is planned for 2024 following approval from the Teagasc Senior Management Group.

Walsh Scholars Gold Medal

Walsh Scholar Alum Award



Davor Daniloski, winner of the Teagasc Walsh Scholars Gold Medal, pictured with his mother, along with Teagasc Director, Professor Frank O' Mara and Teagasc Chairman Liam Herlihy.

Signpost Farms Programme



The Signpost Programme

The Signpost Programme is a multi-annual campaign to lead climate action by all Irish farmers, and includes three main elements: (1) the Signpost Farms; (2) the Signpost Advisory Programme; and (3) the Signpost Soil Carbon, and other, research experiments. It involves over 60 partner organisations working together to increase the uptake of climate mitigation technologies.

Farmers are at the core of the programme, with over 120 demonstration farmers being supported by Teagasc advisors to both adopt the latest technologies and also to share their experiences with other farmers, and 10,000 farmers participating in the Signpost Advisory Programme.



Pictured at the Teagasc Environment Research Centre, Johnstown Castle, County Wexford, were the team of 20 Teagasc Signpost Advisors with Tom O'Dwyer, Head of the Signpost Programme; Pat Murphy, Head of the Teagasc Environment Knowledge Transfer Department; and John Greaney, Teagasc Signpost Programme.

Signpost Advisory Programme

A new free Signpost Advisory service was established in 2023 to assist farmers in making their farms more environmentally sustainable. A team of twenty Signpost advisors is in place across the Teagasc advisory regions and will work with farmers to develop and implement plans to reduce Greenhouse Gas emission from their farms.

This new programme to support climate and sustainability actions on farms, is available to all farmers and is free of charge. The programme will provide dedicated advisory and training support to farmers to develop a plan that is appropriate to their farm.

According to George Ramsbottom who leads the Signpost Advisory Programme it complements the current work of Teagasc's business and technology technical programme. The climate advisors' role is to help farmers to accelerate their adoption of current practices and technologies that reduce GHG emissions and to promote the adoption of new technologies as they emerge.

AGNAV

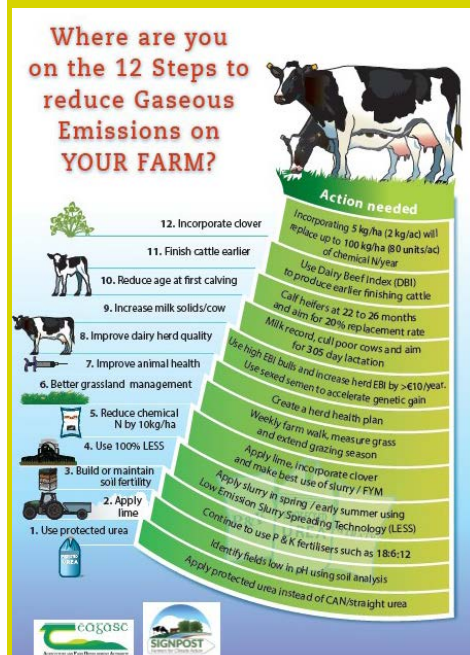


Engage with 50,000 farmers between now & 2030



Progress

Significant progress has been made by Signpost farmers to adopt the 12 steps to reduce greenhouse gas emissions, in particular a reduction in chemical N use, increased uptake of NBPT Urea (Protected Urea), high adoption rate of LESS, extensive use of lime to correct soil pH and incorporation of clover / multispecies swards.



Carbon Sequestration

An important part of the Signpost Programme is the research work establishing the carbon sequestration potential on Signpost farms. Deep soil sampling to establish carbon stocks on Signpost farms started in 2023, led by Giulia Bondi. Lidar measurement to establish above ground biomass was also conducted on Signpost farms in 2023.

Improving water quality

ASSAP Programme

The ASSAP Programme focuses on improving the water quality in designated river catchments across the country. The programme is a collaboration between Teagasc, the dairy processing co-ops and the Local Authority Waters Programme, (LAWPRO). ASSAP advisors complete an on-farm assessment of risks to water quality and agree a plan with the farmer by recommending actions to minimise the loss of nutrients, sediment and pesticides to water.

The ASSAP is collaborating with the Farming for Water EIP to provide funding for farmers to put in place mitigation measures at key locations in the farm to ensure the 'right measure is in the right place' to deliver improvements in water quality. The EIP is providing €50 million for measures over five years and is funded by DAFM and DHLGH (€10 million for EIP administration). In 2023 ca. 600 Farm assessments and ca. 300 Follow up visits were conducted as part of the ASSAP programme.

The Agricultural Catchments Programme

In 2023, mid-term reviews of the Nitrates Action Programme (NAP) and its Derogation led to a greater focus and interest in the findings of the Agricultural Catchments Programme (ACP) than ever experienced in the previous 15 years of the programme. Events of note include ACP Catchments Week which culminated with an open day on Friday 12th May at the Timoleague catchment. Following on from this event we hosted visits from the IFA on the 3rd July, Teagasc's authority on 6th September, the EU Nitrates Policy and Scientific Group on the 3rd of October and the Tánaiste and Minister for Agriculture on 12th October. In November the ACP hosted an international scientific conference "Catchment Science 2023" attracting over 200 delegates to the three day event, which marked the end of the programme's fourth phase. In early December the programme's funders, the Department of Agriculture, Food and the Marine announced an increase in funding to 13m for Phase 5 (2024 to 2027), which will add the evaluation of bespoke mitigating measures to the programme's already extensive remit.

The ACP continues to work with over 300 farmers in its six catchment areas, informing policy and agricultural stakeholders, publishing peer reviewed papers, T-research articles, Teagasc daily articles and mainstream media publications in the form of podcasts, radio, print and social media platforms in 2023.

Adaptation to Climate Change

The National Climate Centre is a virtual centre established by Teagasc to co-ordinate climate research and innovation. It will accelerate efforts to bring "almost ready" and "early stage" technologies to deployment stage. This will facilitate the Irish agriculture sector to meet its commitments in reducing greenhouse gas emissions. Twenty four new scientific staff will join the virtual centre.

This Climate Centre will build on existing research infrastructure and human capital, working with national and international organisations and institutions to create an effective, trusted partnership. It will provide independent robust scientific and technological solutions to lead the agri-food sector towards climate-neutrality by 2050.

A more biodiverse agriculture

Upland symposium

A one-day symposium on Upland Farming and Landscape Management, was held in November 2023 in Westport, Co. Mayo.

It brought together scientists, policymakers, knowledge transfer professionals and practitioners from across the island of Ireland engaged with managing the uplands. The symposium had a mix of scientific presentations and panel discussions, with farmer and wider stakeholder contributions.

Themes for the symposium included:

- Uplands & Carbon
- Uplands & Biodiversity
- Uplands & Water



President Michael D. Higgins reviewing the Teagasc Biodiversity exhibit on the Teagasc stand at the National Ploughing Championships in 2023.



Pictured at the Upland Farming and Landscapes Management Symposium on Thursday 16 November, 2023 from (L to R): Paul McHenry, Head of the Knowledge Advisory Service CAFRE, Northern Ireland; Stan Lalor, Director of Knowledge Transfer, Teagasc; Catherine Keena, Countryside Management Specialist, Teagasc; Vivian Silke, Regional Manager, Mayo Advisory Region, Teagasc and Professor Frank O Mara, Director of Teagasc.

Hedgerow week

In a new partnership, Teagasc and the Heritage Council jointly coordinated 2023's programme of events.



Pictured from left to right at the launch of National Hedgerow Week 2023 were: Stan Lalor, Director of Knowledge Transfer, Teagasc; Minister Pippa Hackett, Minister of State with responsibility for Land Use and Biodiversity; Virginia Teehan, Chief Executive of the Heritage Council; Minister Malcolm Noonan, Minister of State for Heritage and Electoral Reform; and Doris Coyne, host farmer, Westmanstown, Lucan, Co. Dublin

Plant diversity in grasslands

New research from the Teagasc Environment Research Centre, Johnstown Castle, shows that higher plant diversity of intensively managed multi-species swards enhances belowground soil biodiversity and health. The study, which has been published in the international scientific journal, *European Journal of Soil Biology*, by Israel Ikoyi, Guylain Grange, John Finn and Fiona Brennan, showed that as grasslands increased plant diversity, soil-dwelling nematode communities also had increased diversity and improved performance across a range of ecological soil health indices.



Stephanie Maher and Colm O'Leary did work on native Irish bees in 2023.

A photograph of three men in a farm setting. The man on the right, with a beard and wearing a blue jacket, is gesturing with his hand while speaking to the other two men. The man in the middle is wearing a dark blue jacket with a logo and a grey beanie. The man on the left is wearing a dark jacket and a grey beanie. They are standing in front of a wooden fence and a building with corrugated metal siding. The text 'Strategic Goal 4' is overlaid on the image in white, with the number '4' being significantly larger than the words 'Strategic Goal'.

Strategic Goal 4

To ensure through science-based innovation, healthier soils, animals and people

- Healthy soils
- Healthy and well cared for animals
- Human Health and Nutrition

Healthy soils

Multi-species grassland swards enhance soil biology

New research from the Teagasc Environment Research Centre, Johnstown Castle shows that higher plant diversity of intensively managed multi-species swards enhances belowground soil biodiversity and health. The study, which has been published in the international scientific journal, 'European Journal of Soil Biology', showed that as grasslands increased plant diversity up to six species of grasses, clovers and herbs, soil-dwelling nematode communities also had increased diversity and improved performance across a range of ecological soil health indices.

Teagasc Manure Management Report

Understanding manure management on Irish farms is important for use in the calculation of national emissions data for greenhouse gases and ammonia. In 2023, Teagasc launched a new study examining manure management practices on Irish farms, which influence the environmental impact of agriculture. The study is based on analysis of

farms with bovine animals over the 2017 to 2021 period using data collected by the Teagasc National Farm Survey (NFS).

The study provides reliable detail on the duration of bovine animal housing periods, the prevalence of different types of slurry and farmyard manure storage facilities, the proportion of manures generated by different animal types, the extent of seasonality of manure application and the extent to which various slurry application and manures storage methods are employed.

Launch of FutureSoils

Teagasc is collaborating with Grassland Agro and University College Cork (UCC) to support FutureSoils, an innovative new research programme that will pave the way to improved efficiency in nitrogen fertiliser use and soil health on Irish farms. Grassland Agro, via the SFI funded VistaMilk Research Centre, will support two PhD students.

Nitrates and Derogation Information Meetings

In 2023 Teagasc hosted a series of Nitrates and Derogation information meetings for farmers and the wider Agri-professional community. These events were held in each of the Teagasc advisory regions, with presentations from local Teagasc staff.



Pictured at the launch in UCC are Professor Astrid Wingler, Head of School of Biological, Earth and Environmental Sciences (BEES), David Wall, Teagasc Johnstown Castle, Professor Frank Buckley, Professor of Agricultural Science at UCC, David Corbett, Grassland Agro, Liam Woulfe, Managing Director of Grassland Agro and Teagasc Authority member, John O'Loughlin, Grassland Agro, Professor Michael O'Donovan, Teagasc Head of Grassland Science and Michael Egan, Teagasc Moorepark.

Global Soil Biodiversity conference

A major international conference on soil biodiversity, co-hosted by University College Dublin and Teagasc, in association with the Global Soil Biodiversity Initiative, took place in Dublin, in March. The 3rd Global Soil Biodiversity conference, a three day event, was held on the UCD campus and brought together the world's leading experts in soil biodiversity science, over 650 people attended from 120 countries.

Field event

The key message from a field event held in the Teagasc Soil, Environment and Land use Research Centre in Johnstown Castle, County Wexford in March, was that good soil health is the foundation of productive and resilient agricultural systems. The theme of the event was: 'Farming for Soil Health: Building Resilient Agricultural Systems from the Ground Up'.



To mark World Soil Day 2023, Minister of State Pippa Hackett visited Thomas, Florence and David Fennelly's farm near Emo, Co. Laois. The Fennelly's are dairy farmers participating in the Teagasc Signpost programme and are carrying out activities to reduce the GHG and ammonia emissions, to improve water quality, soil health and the overall biodiversity on their farm. Pictured L-R George Ramsbottom (Teagasc), Mary Cleary (DAFM) Thomas Fennelly (Farmer), Florence Fennelly, Minister of State Pippa Hackett, Niall Ryan, (DAFM) David Fennelly (Farmer), Lorcan Dooley (Teagasc) Méabh O'Hagan (Teagasc).

Healthy and well cared for animals

Transport

Teagasc conducted studies in 2023 on unweaned calves undergoing long-distance transportation to investigate the effect of calf age on health and welfare outcomes, and also examined the effect of providing calves with a milk replacer feed half way through the ferry journey on measures of their health and welfare.

Environment enrichment

Teagasc researchers investigated alternative enrichment materials for sows in farrowing crates (to facilitate nest building behaviour). Two other students looked at risk factors for ear and tail lesions on pig farms.

High welfare, low emissions pig house

Teagasc opened a new high welfare, low emissions pig house at Moorepark in 2023. It has an outdoor area, a higher space allowance, lots of solid floor which facilitates provision of enrichment/bedding and reduces the risk of lameness – research is currently underway to verify these claims.

Twenty outdoor pig producers were visited and underwent pig welfare inspections as part of the OneWelPig project. Researchers report that pigs have much greater behavioural freedom in these systems but have greater challenges relating to weather (cold and heat stress), parasites and low body condition in lactating sows.

Human health and nutrition

CoDiet

A new research project launched in 2023 will investigate the relationship between diet and non-communicable diseases (NCDs) by trialling innovative monitoring technologies, such as wearable smart-cameras, and developing artificial intelligence tools to deliver personalised dietary advice.

Orla O'Sullivan, the project's leader at Teagasc said:

"We are excited to be part of the CoDiet project with our international colleagues. We will utilise our existing microbiome knowledge and the DNA Sequencing facilities and expertise at Teagasc to enhance our knowledge of NCD and the potential impact of personalised dietary advice."

A new Teagasc project is exploring ways to improve the yield and composition of cows' milk oligosaccharides, which will ultimately support the sustainable large-scale extraction of oligosaccharides from bovine milk and its whey derivatives. This project – known as OPTI-OLIGO – also aims to better characterise the enzymes produced in the mammary gland that lead to the synthesis of oligosaccharides in cow's milk.

SeaHealth

Teagasc's SeaHealth project is screening seaweed extracts that have the potential to positively impact the human gut microbiome if ingested. The gut microbiome is the community of bacteria, fungi and viruses that inhabit our gut. An imbalance in the beneficial versus harmful bacteria ratio (dysbiosis) of the gut microbiome may affect our health.

Gold standard

Breast milk is considered the gold standard of infant nutrition because it contains the essential nutrients to support early infant growth, development and immunity. The sugars in human milk, known as oligosaccharides, play a key role in releasing these beneficial functions.



An Tánaiste, Minister for Foreign Affairs and Minister for Defence, Mr. Micheál Martin, T.D. launched a 20 Years Impact brochure for APC Microbiome Ireland at a celebration event in The Glucksman Gallery, UCC, in December. Pictured from (L to R) were: Professor Paul Ross, APC Microbiome Ireland Director; Pamela Byrne, Chair of APC Governance Board and CEO of the Food Safety Authority of Ireland; Professor Frank O'Mara, Teagasc Director and An Tánaiste, Minister for Foreign Affairs and Minister for Defence, Micheál Martin, T.D.



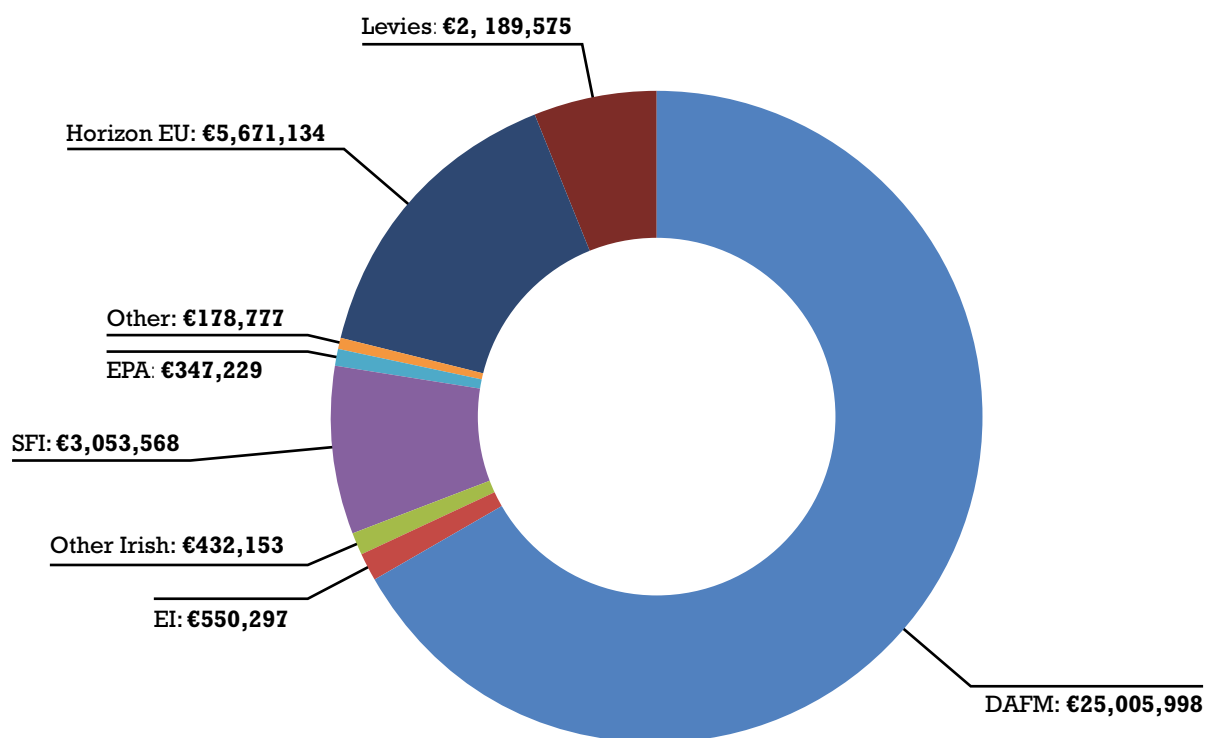
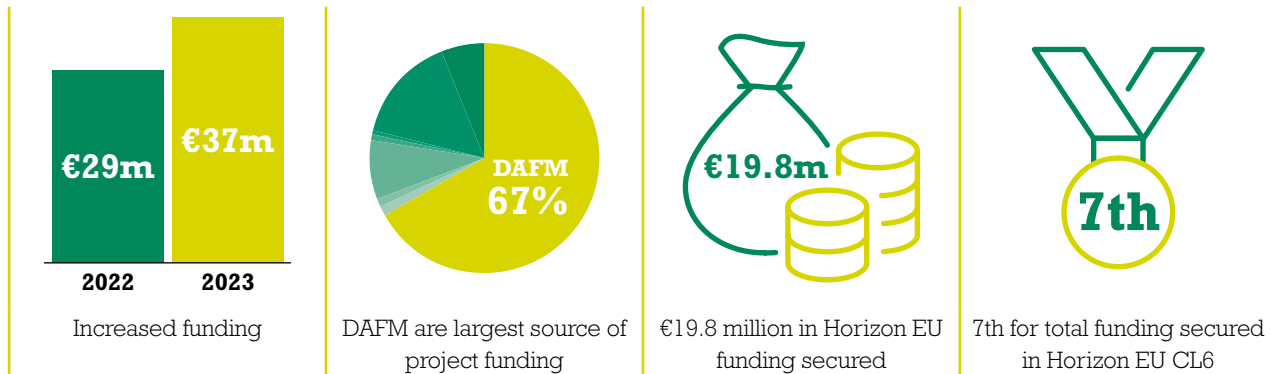
Strategic Goal 5

To constantly improve organisational excellence and efficiency in the delivery of our services

- Resourcing and managing current expenditure.
- 'Teagasc Together': Building a More Agile Organisation
- Diversity and Inclusion
- Data Protection
- Collaboration
- Infrastructure investment
- Leveraging new technology for staff
- Digitalisation and ICT resources
- Communications and engagement

Research Funding

In 2023 Teagasc was awarded external research funding valued at €37.4m that will be drawn over the next three to six years. Irish public funding sources accounted for 78.5% of funding awarded, 15.5% was from European public funding sources and 6% was from industry levies.


























Irish Funding

In 2023, Teagasc researchers secured €29.4m in funding from Irish public funding agencies. The largest source of funds from all sources was the Department of Agriculture, Food and the Marine (DAFM). DAFM funded a number of national and international calls in 2023. Principal amongst these was the thematic research funding call. The main objectives of the call include supporting the development of holistic and sustainable agri-food, forest, and bio-based systems which aim to deliver affordable, safe, and nutritious food and biobased products for all citizens, while ensuring a healthy, safe environment for all. The total value of funding awarded to Teagasc in 2023 for projects funded under this call is €8.5 million.

In December 2023, DAFM confirmed funding for a fifth phase of the Agricultural Catchment Programme (ACP) from 2024 to 2027. The enhanced programme will include continued and expanded research and monitoring of water quality and climate change; continued DAFM commitment to the Agricultural Sustainability Support and Advisory Programme (ASSAP); and a new emphasis on developing policy ready water and climate mitigation strategies. Phase 5 involves an increased overall funding total for 2024-2027 of more than €13 million.

Teagasc Operations Directorate 2023

				
ICT	People	Corporate Responsibility & Sustainability	Health & Safety	Finance
 99% ICT Infrastructure availability	 518 recruitment competitions	 % Procurement Projects incorporating Green Public Procurement (GPP) = 33%	 3,829 Bi-Monthly H&S Audits completed in 2022 across Teagasc	 Managed Teagasc budget of €232 million
 37 ICT Projects completed	 480 appointments	 Eleven solar PV projects at Teagasc campuses and regional offices will generate ca. 509 mWh of electricity per year with potential savings of €152 .	 4,416 H&S Improvement actions completed in 2022 across Teagasc	 37,000 supplier invoices
 €702K invested in ICT projects	 4,300 applications			 310 research project grant claims and reports completed
 Supported 3,036 PCs	 47 staff completed level 5 – 10 QQI courses supported by Teagasc Learning and Development Fund.			
 7,206 network devices under management		 LED retrofits at Teagasc facilities at Moorepark, Kildalton, Johnstown Castle, Oak Park and the National Botanic Gardens should yield savings of 740 mWh of electricity and €222,000 annually.		
				 Payroll delivered to 1,439 staff and 1,768 pensioners

Teagasc Research, Advisory and Education Programmes operate from 10 multi-building sites and 45 stand alone offices. Teagasc also uses farm land and offices under rental agreements.

Customer Action Plan

This document incorporated feedback from both internal and external customers to help identify opportunities to improve Teagasc services. A key focus that emerged from this process was the need for a more agile action plan. This plan will be reviewed and reported on annually, with provision for 'course correction' through additional or amended actions.



This more flexible approach will enable Teagasc to better adapt to emerging priorities.

The plan supports Teagasc's Statement of Strategy 2021-2024, "Teagasc Together". The ongoing provision of high quality research, advisory and education services relies heavily on the Teagasc Together concept.

Resourcing and managing current expenditure

The Teagasc finance system has well over one thousand users including all Teagasc staff and scholars and others that need to claim expenses. It has multiple modules including requisitioning and purchasing, travel and expenses, fixed assets, a General Ledger, sales, and cash management. Its accuracy and integrity is crucial to the proper management of Teagasc's finances.

The finance system is also intrinsically linked into Teagasc's Customer Relationship Management systems for client billing. Both systems therefore had to be comprehensively tested as part of a project to upgrade the system.

Project management Volunteer network

Teagasc employs a number of dedicated Project Managers to manage European and Nationally (DAFM, SFI) funded projects. Membership of the PM group fluctuates, as new projects are funded and existing projects are completed. Currently there are 12 members who meet monthly via Zoom to discuss relevant topics that are applicable to the group, share experiences of problem-solving fixes, and there is always a valuable Q&A session to facilitate newcomers and all learners.

Teagasc Commitment to Core Values

In 2023 HR Dept led a project to review the existing Teagasc Values statement with the goal of crystallising and strengthening our Core Values. HR set up a staff working group, ran a number of workshops and a staff survey. The working group also sought input from the National Partnership Committee, senior management and the Teagasc Authority. In October 2023 the new Values of Respect, Excellence and Integrity were finalised and presented to the Teagasc Authority. The Teagasc Values are the guiding principles that shape our culture and drive our success. By embodying these Values in our everyday work, we can help to cultivate an organisation where staff, clients and stakeholders feel supported, valued, and inspired to collectively do our best.



'Teagasc Together' Building a more agile organisation

A *Teagasc Together* way of working is embedded in our new Values and is the title of the current Statement of Strategy. Teagasc has focused more in recent years on the strength of our collaboration and how it helps to deliver excellence.

At the end of 2023 staff were invited to submit examples of this 'Teagasc Together' work ethos. Twenty six examples of projects embodying the Teagasc Together culture were submitted. These examples extended across the breadth of the organisation with scientists, technical staff, advisors, specialists, and operations staff working together to deliver exceptional outputs for our clients and stakeholders.

Governance Review Group

During 2023 Teagasc established a Governance Review Group (GRG) to ensure the organisation is maintaining at all times the highest standards of corporate governance which comprises the systems and procedures by which the organisation is directed, controlled and managed. The GRG will promote the development and maintenance of a positive governance culture that encourages all managers and staff within the organisation to refer governance related issues or queries to the GRG for review. The GRG will also consider any governance concerns that may be raised by external parties.

People Leadership Conference

Teagasc held its first internal people management conference in October 2023. This two day training event was attended by 71 managers from across the organisation. The purpose of the conference was to create meaningful opportunity for Teagasc business unit managers and senior leaders to sharpen leadership skills, learn about best practice, share ideas, reflect, network, and strengthen professional credibility in a continuous professional development environment.



The People Leadership Conference.

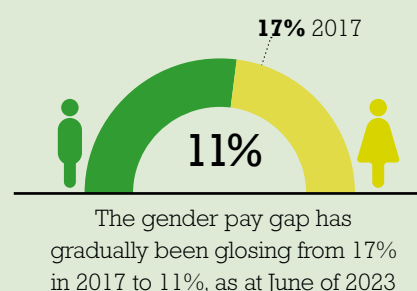
Diversity and inclusion

Teagasc continued its Diversity and Inclusion programme of activities across 2023. The working group pooled its efforts to stage a Teagasc Diversity and Inclusion Month in June. Over 1,259 staff interacted with the programme which celebrated differences, created greater awareness around the importance of inclusion and educated colleagues on topics such as neurodiversity and Pride. Pride flags were flown, staff wore Pride badges, and colleagues engaged in webinars on the topics of transgender and neurodiversity.

Teagasc published its second Gender Pay Gap Report which shows how the pay gap in Teagasc has reduced again for the seventh consecutive year. In 2017, our pay gap was 17% and it has been gradually closing to a gap of 11%, as at June of 2023. Teagasc continues to invest in initiatives set out in the Teagasc Gender Equality Plan. Teagasc recognises that being able to attract develop and retain female talent is crucial, and that organisations with gender-diverse management teams outperform organisations that do not have such diversity at the decision-making table. The appointment of more females to key management roles in Teagasc has positively changed the organisation structure and

the leadership dynamic. It has provided important female role models for staff who have chosen to begin their careers in Teagasc. We are seeing greater participation of female staff in post graduate courses, and more females stepping forward for nominations to state boards. Teagasc is actively creating a welcoming workplace culture where staff, in particular female staff, will want to develop their careers, so that they can reach their true potential by advancing through our organisation.

Teagasc launched a 'reasonable accommodations passport' to all staff. This tool is a very easy and inclusive way for staff who have a disability to seek supports and accommodation from Teagasc. In its annual survey, the data shows that 7% of Teagasc staff have a disability, this is up from 5.43% in 2022.



Staff Engagement

Teagasc ran many staff engagement programmes during 2023.

Twenty staff graduated from the DCU Teagasc Leadership Development Programme in October 2023. Participants on the Teagasc LDP develop skills and competencies to work effectively with colleagues to develop their personal management and leadership skills. They have opportunities to identify organisational problems and to work on Teagasc strategic projects. Participants have the opportunity to network and foster collaborative working relationships with other colleagues around the organisation and to appreciate the importance of leadership behaviour in the changing world of work.

In 2023 there was an increase of 400 users to the Teagasc Internal Communications platform Workvivo. There are now 1,800 active daily users on the platform which hosts many organisational communications and staff engagement activities such as pulse surveys. A survey of staff experiences with home working was carried out through WorkVivo and this will feed into a comprehensive review of all of our agile working programmes.

The Research Directorate hosted town hall staff communications meetings in all of its research centres during 2023. Meetings were also organised with colleagues working on our farms where they had opportunities to discuss challenges with a HR Dept representative and the Teagasc Authority Staff representative.

Collaboration

Intellectual property

Teagasc IP Policy sets the framework for Teagasc to professionally managing its collaborative engagements with industry, while providing guidance on rights, financial risks and rewards associated with commercialisation of its IP.

It dictates Teagasc best practices, to manage industry engagements and commercialisation of its research outputs. A revision of National IP Policy completed in 2023 reflects recommendations at national and international level, and illustrates Teagasc commitment to ensuring an agile but structured approach to commercialising all forms of IP. Through this policy, Teagasc leads the way nationally, in managing complex data driven IP for optimal exploitation.

AgNav

The development of AgNav is of strategic national importance to assist the agricultural sector deliver sectoral targets. The key objective is to enable farmers to develop bespoke action plans to implement climate action and sustainability improvements. AgNav is farmer oriented, informing them of their farm's current performance and what actions they can adopt.

At scale, AgNav has potential to be the catalyst for accelerating the adoption of appropriate actions at individual farm level. The collaboration by Teagasc Teams with Bord Bia and ICBF has been built on open trust and bodes well for further collaborations. AgNav has been widely advocated by farmers and stakeholders including DAFM as a practical tool. It enables Ireland to take a lead position to develop country-specific whole farm sustainability assessments.



Data protection

In compliance with Data Protection requirements, all Business Unit Managers were requested to carry out Data Protection Annual Reviews

and in conjunction with the Data Protection Coordinators, review the Data Retention Schedule and the Record of Processing Activity for their Business Unit.

The Data Protection Coordinators Network was expanded in 2023 to include a coordinator for every Research Department in Teagasc. A full day in-person training was provided by the Teagasc Data Protection Officer in conjunction with an external company, for the co-ordinators at the end of January 2023.

In addition, online training was provided to coordinators and tailored sessions delivered for the new co-ordinators in Teagasc Research Departments. The training provided to coordinators and the messaging

around the Data Protection Annual Reviews, served to further raise awareness of Data Protection throughout the organisation.

In Q3 2023, Teagasc engaged an external Data Protection support company to supplement resourcing in Data Protection and to work with the Teagasc Data Protection Officer. Data Subject requests were dealt with in line with the Teagasc policy and statutory timeframes were adhered to. Data Incidents which occurred were dealt with and recorded as required by Teagasc policy documents.

Teagasc comes under the Freedom of Information Act 2014 and all requests submitted to Teagasc have been dealt with as required by the legislation.

Industry Engagement

Industry engagement, commercialisation and entrepreneurship

In 2023 Teagasc harnessed cutting-edge research and technologies to address critical challenges facing farmers and agri-food producers to enhance productivity, sustainability, and competitiveness, and ultimately enable economic growth.

The Technology Transfer Office (TTO), Engage@Teagasc contributed to the long-term impact of Teagasc research by providing a focal point through which industry partners can engage with Teagasc research and technologies.

2023 was a busy year for the Engage@Teagasc team offering support across all the Research Programmes. This included impact and entrepreneurship training for over 150 researchers and increased support to early career researchers to create a sustainable innovation pipeline. Support for contractual arrangements included research and industry collaborations, consultancy and technical service provision along with managing a diverse portfolio of new innovations and intellectual property (IP).

- Of the €58.2 million research income received by Teagasc in 2023, 28.2% was associated with industry sponsored collaborations (wholly and partly funded by industry) and 14.6% directly funded by industry cash contributions.
- 10 new collaboration agreements funded partly or wholly by industry were signed, involving 14 companies. As of 31st December 2023, there were 53 collaborative research agreements ongoing with industry (wholly and part funded).
- Teagasc also reported 65 consultancy service agreements in 2023 with a gross revenue of €3.1M; 35 of these agreements were with SMEs.
- Strong innovative and commercialisation activity was demonstrated in 2023, including
 - » 42 novel invention disclosures captured, doubling from previous years demonstrating encouraging growth in research engagement with IP development and commercialisation.
 - » 1 new patent application filed, bringing the Teagasc patent families to 33
 - » 43 new licences, options and assignments signed with industry. This includes 6 commercial licences, (5 of which relate to new ryegrass varieties), 2 assignments and 35 options, (mostly from industry led centres funded by SFI and Enterprise Ireland).
 - » €1,307,369 IP Commercialisation Income was received (from active agreements with industry), well above the target of €806K, with €803K of this from commercialisation of novel potato and grass varieties.
- An extensive review of Teagasc IP Policy and procedures was undertaken in 2023, with a focus on good governance. This has enabled greater transparency of processes and managing complex data driven IP.
- UCD and Teagasc secured €7 million funding for an Agritech and Food Programme to support

entrepreneurship under Enterprise Ireland Innovators' Initiative: Pioneering Smart Futures training programme (formerly titled Needs Led Training Initiative). The new entrepreneurship programme will be launched in 2024 and increase innovation knowledge within the food and agriculture sector leading to the creation of more high potential start-ups (HPSUs) and jobs in this sector of the economy.

GoldCrop and Teagasc collaborate to deliver Pasture Innovations

The Teagasc Grass Breeding Programme has been a key priority for the past three decades with commercial arrangements in place to support marketing and propagation worldwide. With the conclusion of the existing arrangements in 2023, a new initiative procured a commercial partner for breeding and commercialisation.

The Engage@Teagasc team took the lead on negotiating the new Framework Agreement that supports the collaborative arrangement, and the template Licence Agreement that enables the exploitation of novel varieties.

Throughout the process Procurement and Engage@Teagasc were strongly supported by the expertise and experience of the Forage Breeding team to ensure both the tender documentation and the legal documentation were realistic and implementable for both Teagasc and Goldcrop Ltd.

Partnering with Goldcrop Ltd., the largest Irish seed wholesaler, ensures the continuation of the programme and provides an avenue whereby the novel varieties can reach the grassland markets.



Teagasc and Goldcrop sign a long-term grass & clover genetic improvement agreement at the Teagasc Moorepark'23. Picture: O'Gorman Photography.

Infrastructure investment

NASRIC. In September 2023, Teagasc began the construction phase of the National Agriculture Sustainability Research and Innovation Centre (NASRIC) in Johnstown Castle. The Centre will focus on the development, testing and implementation of innovative technologies to facilitate farmers to combine economic and environmental sustainability. NASRIC will provide practical integrated solutions for farmers and other stakeholders to improve soil health, restore and protect biodiversity, improve water quality, reduce emissions of greenhouse gases and ammonia and enhance soil carbon sequestration. The construction includes a new high specification laboratory building of circa 1450m² along with a refurbishment to existing laboratories of circa 1750m² to provide higher quality laboratory space. The building will continue construction through 2024 with Phase 1 expected to be completed in 2025.

Centre for Sustainable Animal and Grassland Research

Minister for Agriculture, Food, and the Marine, Charlie McConalogue, TD announced that contributions by FBD Holdings plc, FBD Trust CLG and Farmer Business Developments Plc amounting to €6 million have been made to the development of a new Centre for Sustainable Animal and Grassland Research at Teagasc Moorepark, Fermoy Co Cork.

Capital projects

In total €10,369,547 was expended on capital projects during 2023. This includes €4.16m on 2023 minor capital projects; twenty six of the twenty eight were completed or on schedule at year end with 95% of the minor capital budget expended. Two of the larger projects were:

Classrooms, Kildalton College

This project consists of a new building construction to increase the number of classrooms available. The building is two storey, and comprises two classrooms and an adjoining access stairs. The project will allow Kildalton to accommodate the ever-increasing cohort of students enrolling each year.

Farmyard Development, Kildalton College

This project aimed to modernise the farmyard infrastructure in Kildalton College. In doing so it targeted issues with regard to environmental, sustainability and safety, as well as updating the farm buildings to allow for best practise student demonstration areas. It included the construction of silage pits, a relocated roadway, a wash bay, a calf house, a machinery shed and a hay/straw storage shed.

Digitalisation and ICT resources

During 2023 Teagasc engaged Stryve to conduct a review of its cyber-security against the widely used Centre for Internet Security set of Controls. Out of the 18 controls and 153 sub-controls examined, Stryve found seven controls where improvements are required and they prioritised one significant action as urgent.

The 2023 business plan contained 72 ICT projects at the start of the year. A further 12 projects were introduced during the year, either prioritised by the ICT Committee or necessitated for Security or Operational reasons. A technical prototype has been completed as a proof of concept that the CRM can be moved to the cloud. This addressed all of the main challenges and implemented a sample of each. It has also identified that an architectural change will be needed to ensure performance is maintained in the cloud.

Communications and engagement

Teagasc Daily app

The Teagasc Daily app was completed in 2023, it delivers a daily news stream in the form of an app that can be personalised to a farmer's interests.

Irish language

The Official Languages (Amendment) Act 2021 came into force in 2022. The main purpose of the Act is to increase and improve the provision of public services through Irish. It aims to build on the progress made under the Official Languages Act 2003 and to develop a National Plan for Irish Language Public Services, among other important actions. One of the key provisions of the 2021 Act is a new statutory obligation for public bodies in relation to advertising and communications with the public. Section 10A places specific duties on public bodies in relation to the way they communicate in the State's official languages. The new provision is of considerable importance as it sets out that all public bodies will be required to do at least 20% of their annual advertising in Irish and 5% of their advertising spend in

Irish language media. Section 10A further provides that public bodies must file an electronic compliance return based on the advertising placed by the public body in 2023, which was the first full calendar year in which the Act was implemented. Teagasc submitted its electronic return to An Coimisinéir Teanga on 28 March 2024 and is therefore compliant with the new reporting requirements set out in the Official Languages (Amendment) Act 2021.

Mental Health First Aiders

In December 2023, the Teagasc Walsh Scholars Postgraduate Research Training Programme formed a network of Mental Health First Aiders across all Teagasc Research Centres. The network was established to support Scholars who may be feeling overwhelmed during their studies or are concerned about their mental health and wellbeing. They provide non-judgemental support and information to Scholars on a strictly confidential basis. The network is a very important element of Teagasc's duty of care for Scholars, who form a large and important group within the organisation.

Highly cited

Three Teagasc researchers were named on the annual Highly Cited Researchers list from Clarivate for 2023. This list identifies researchers who demonstrated significant influence in their field of research, through the publication of multiple highly cited scientific papers. Six thousand, eight hundred and forty nine individual researchers from institutions in 67 countries and regions have been named Highly Cited Researchers 2023. The three Teagasc researchers are: Brijesh Tiwari, Catherine Stanton and Paul Cotter.



Teagasc award

Aine Shortall and Kate Whyte from Moate Community School, County Westmeath, are the winners of the Teagasc award at the BT Young Scientist and Technology Exhibition (BTYSTE) 2023.

Their project looked at creating a solution to anthelmintic resistance in horses. They trialled a number of different herbs to reduce populations of parasites such as lungworm, redworm and liver fluke in horses.



Declan Troy, Assistant Director of Research at Teagasc, presents the Teagasc Special Award to Aine Shortall (left) and Kate Whyte (right) at the BTYSTE 2023 award ceremony.

Energy Report

Teagasc operates out of 56 primary locations nationwide varying in scale from large multi building campus to small local advisory offices; the locations break down into:

- 10 Large Campuses (plus the Botanics College) averaging at just over 6,500m2 of treated/conditioned floor area
- 53 Advisory Offices averaging at just under 340m2 of treated/conditioned floor area (including rental properties)

All public bodies, including Teagasc, are required to report energy data annually using the SEAI's online monitoring and reporting (M&R) system. This process was, until 2024, completed by April of following year (i.e., April 2023 for 2022). The energy consumption and metrics are then validated by the SEAI and a report card on usage for each organisation is issued. In 2024, SEAI changed the reporting timeline which means that Teagasc's energy scorecard for 2023 will not be available until November 2024.

Under the Government's Climate Action Plan, all public sector bodies must increase their energy efficiency by 50% by 2030, based on a 2009 baseline. In the years 2014—2022 Teagasc made considerable progress towards this target, achieving energy efficiency improvements

(EnPI) of 36.4% as of 2022. Whilst this means that Teagasc is progressing well towards meeting its 2030 targets, continued investment in energy infrastructure will be required to continue on the correct glidepath.

2023 saw the insertion of four large solar PV arrays in Oak Park Campus, Ballyhaise College, Ashtown Food Research Centre and Kildalton College along with six advisory offices in Ballina, Ballinasloe, Castlerea, Longford, Mohill and Westport. An additional farmyard array was also partially completed by year-end. In total, the eleven 2023 projects will generate circa 509 mWh of electricity per year with potential savings of €152k (based on estimated 30c per AUP).

In 2023 LED retrofits were carried out in Kildalton, Moorepark AGRIC, Johnstown Castle, Oak Park Head Office and the Botanic College. Based on pre-project consultant engineers' report there are calculated energy savings in the region of 740 mWh which, based on a unit price of electricity at €0.30 per kWh gives potential savings of €222k per annum.

Diagram below indicates Teagasc use of thermal/transport fuels in 2023 versus 2022. There were very good reductions in Gas Oil and Wood Chip usage, but moderate increases in LPG and Kerosene. Overall this equates to roughly 550,000 kWh less in 2023 compared to 2022.

Fuel	Supplier	UoM	Delivered 2022	Delivered 2023	% Change
Gas Oil 10PPM	Circle-K	Litres	660,237	621,314	↓ 5.9%
Kero	Circle-K	Litres	141,550	156,130	↑ 10.3%
miles Diesel	Circle-K	Litres	158,029	162,272	↑ 2.7%
miles Unleaded	Circle-K	Litres	6,008	7,016	↑ 16.8%
LPG	Flogas	Litres	188,261	231,689	↑ 23.1%
LPG	Calor	Litres	29,328	28,199	↓ 3.8%
Total	-	Litres	217,589	259,888	↑ 19.4%
Wood Chips	Clear Power	Tonnes	586.3	395.3	↓ 32.6%
Wood Pellets	Leinster Pellets	Tonnes	52.7	60.3	↑ 14.3%

Report of the Authority and Consolidated Financial Statements

**Financial Year Ended
31 December 2023**

CONTENTS	Page
REPORT OF THE COMPTROLLER AND AUDITOR GENERAL	71
GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT	73
STATEMENT ON INTERNAL CONTROL	79
CONSOLIDATED STATEMENT OF INCOME AND EXPENDITURE	81
CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME	82
STATEMENT OF CONSOLIDATED AND TEAGASC FINANCIAL POSITION	83
CONSOLIDATED STATEMENT OF CHANGES IN CAPITAL AND RESERVES	84
TEAGASC STATEMENT OF CHANGES IN CAPITAL AND RESERVES	85
CONSOLIDATED STATEMENT OF CASH FLOW	86
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS	87 - 114



Ard Reachtaire Cuntas agus Ciste

Comptroller and Auditor General

Report for presentation to the Houses of the Oireachtas Teagasc – the Agriculture and Food Development Authority

Opinion on the financial statements

I have audited the financial statements of Teagasc for the year ended 31 December 2023 as required under the provisions of section 12 of the Agriculture (Research, Training and Advice) Act 1988. The financial statements comprise the consolidated statement of income and expenditure, the consolidated statement of comprehensive income, the statement of financial position of the group and of Teagasc, the consolidated statement of changes in capital and reserves, the statement of changes in capital and reserves of Teagasc, the consolidated statement of cash flows, and the related notes, including a summary of significant accounting policies.

In my opinion, the financial statements give a true and fair view of the assets, liabilities and financial position of the group and of Teagasc at 31 December 2023 and of the group's income and expenditure for 2023 in accordance with Financial Reporting Standard (FRS) 102 – *The Financial Reporting Standard applicable in the UK and the Republic of Ireland*.

Basis of opinion

I conducted my audit of the financial statements in accordance with the International Standards on Auditing (ISAs) as promulgated by the International Organisation of Supreme Audit Institutions. My responsibilities under those standards are described in the appendix to this report. I am independent of Teagasc and have fulfilled my other ethical responsibilities in accordance with the standards.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Report on information other than the financial statements, and on other matters

Teagasc has presented certain other information together with the financial statements. This comprises the annual report, the governance statement and Authority members' report, and the statement on internal control. My responsibilities to report in relation to such information, and on certain other matters upon which I report by exception, are described in the appendix to this report.

Settlements with advisory service clients

Note 8 to the financial statements and the statement on internal control disclose that in 2023, Teagasc paid or made provision for €503,000 in settlements to 49 farm clients who had engaged Teagasc to prepare and submit applications and other work for a range of Department of Agriculture, Food and the Marine schemes, and where the applications had been unsuccessful. Teagasc also incurred €28,000 on associated legal fees. The statement on internal control also sets out the steps taken or planned by Teagasc to address the issues that gave rise to the settlements.

Seamus McCarthy
Comptroller and Auditor General
27 June 2024

REPORT OF THE COMPTROLLER AND AUDITOR GENERAL FOR PRESENTATION TO THE HOUSES OF THE OIREACHTAS

Appendix to the report**Responsibilities of Authority members**

As detailed in the governance statement and Authority members' report, the Authority members are responsible for

- the preparation of annual financial statements in the form prescribed under section 12 of the Agriculture (Research, Training and Advice) Act 1988
- ensuring that the financial statements give a true and fair view in accordance with FRS 102
- ensuring the regularity of transactions
- assessing whether the use of the going concern basis of accounting is appropriate, and
- such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Responsibilities of the Comptroller and Auditor General

I am required under section 12 of the Agriculture (Research, Training and Advice) Act 1988 to audit the financial statements of Teagasc and to report thereon to the Houses of the Oireachtas.

My objective in carrying out the audit is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement due to fraud or error. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with the ISAs, I exercise professional judgment and maintain professional scepticism throughout the audit. In doing so,

- I identify and assess the risks of material misstatement of the financial statements whether due to fraud or error; design and perform audit procedures responsive to those risks; and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- I obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal controls.
- I evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures.

I conclude on the appropriateness of the use of the going concern basis of accounting and, based on the audit evidence obtained, on whether a material uncertainty exists related to events or conditions that may cast significant doubt on Teagasc's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my report. However, future events or conditions may cause Teagasc to cease to continue as a going concern.

- I evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I report by exception if, in my opinion,

- I have not received all the information and explanations I required for my audit, or
- the accounting records were not sufficient to permit the financial statements to be readily and properly audited, or
- the financial statements are not in agreement with the accounting records.

Information other than the financial statements

My opinion on the financial statements does not cover the other information presented with those statements, and I do not express any form of assurance conclusion thereon.

In connection with my audit of the financial statements, I am required under the ISAs to read the other information presented and, in doing so, consider whether the other information is materially inconsistent with the financial statements or with knowledge obtained during the audit, or if it otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact.

Reporting on other matters

My audit is conducted by reference to the special considerations which attach to State bodies in relation to their management and operation. I report if I identify material matters relating to the manner in which public business has been conducted.

I seek to obtain evidence about the regularity of financial transactions in the course of audit. I report if I identify any material instance where public money has not been applied for the purposes intended or where transactions did not conform to the authorities governing them.

GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT

Governance

The Authority of Teagasc was established under the Agriculture (Research, Training and Advice) Act, 1988. The functions of the Authority are set out in the First Schedule of this Act. The Authority is accountable to the Minister for Agriculture, Food and the Marine and is responsible for ensuring good governance and performs this task by setting strategic objectives and targets and taking strategic decisions on all key business issues. The regular day-to-day management, control and direction of Teagasc are the responsibility of the Director and the senior management team. The Director and the senior management team must follow the broad strategic direction set by the Authority, and must ensure that all Authority members have a clear understanding of the key activities and decisions related to the entity, and of any significant risks likely to arise. The Director acts as a direct liaison between the Authority and management of Teagasc.

Teagasc is a registered charity in the Republic of Ireland (Registered Charity Number 20022754) and is granted charitable status under Section 207 of the Taxes Consolidation Act 1997 (CHY 9086).

Authority responsibilities

The work and responsibilities of the Authority are set out in the Agriculture (Research, Training and Advice) Act, 1988, which also contains the matters specifically reserved for Authority decision. Standing items considered by the Authority include:

- declaration of interests,
- reports from committees,
- financial reports/ management accounts,
- performance reports, and
- reserved matters.

Section 12(1) of the Agriculture (Research, Training and Advice) Act, 1988, in conjunction with S.I. No.418 of 2011, requires the Authority of Teagasc to keep, in such form as may be approved by the Minister for Agriculture, Food and the Marine with consent of the Minister for Public Expenditure and Reform, all proper and usual accounts of money received and expended by it.

In preparing these financial statements the Authority of Teagasc is required to:

- select suitable accounting policies and apply them consistently,
- make judgements and estimates that are reasonable and prudent,
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that it will continue in operation, and
- state whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements.

The Authority is responsible for keeping adequate accounting records which disclose, with reasonable accuracy at any time, its financial position and enables it to ensure that the financial statements comply with Section 12(1) of the Agriculture (Research, Training and Advice) Act, 1988. The maintenance and integrity of the corporate and financial information on the Teagasc website is the responsibility of the Authority.

The Authority is responsible for approving the annual business plan and budget. An evaluation of the performance of Teagasc by reference to the annual business plan and budget was carried out on 04 January 2023.

The Authority is also responsible for safeguarding its assets and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The Authority considers that the financial statements of Teagasc give a true and fair view of the financial performance and the financial position of Teagasc at 31 December 2023.

GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT

Authority performance review

An external performance evaluation of how the Authority operates was undertaken in 2023.

Authority structure

The Authority consists of a Chairperson and ten ordinary members, all of whom are appointed by the Minister for Agriculture, Food and the Marine. The members of the Authority are typically appointed for a period of five years (and may be re-appointed for a second term to a maximum of ten years in total) and meet on a monthly basis, except in August. The table below details the appointment period for the Authority members in place during 2023:

Authority member	Role	Period of appointment
Herlihy, Mr. Liam	Chairperson	17 September 2018 – 16 September 2023 and 17 September 2023 – 16 September 2028
Buckley, Mr. John	Ordinary Member	28 September 2018 – 27 September 2023
Donnelly, Ms. Martina	Ordinary Member	10 October 2019 – 09 October 2024
Duffy, Mr. Patrick	Ordinary Member	28 September 2018 – 27 September 2023
Fitzgerald, Prof. Gerald	Ordinary Member	15 September 2013 – 14 September 2023
Hennessy, Prof. Thia	Ordinary Member	23 May 2018 – 22 May 2023 and 23 May 2023 – 22 May 2028
O'Connell, Ms. Eilís	Ordinary Member	30 October 2018 – 21 January 2023
Reynolds, Ms. Elizabeth	Ordinary Member	07 July 2020 – 06 July 2025
Rushe, Mr. Brian	Ordinary Member	27 January 2020 – 26 January 2025
Scully, Mr. Donald	Ordinary Member	06 January 2022 – 05 January 2027
Woulfe, Mr. Liam	Ordinary Member	29 April 2015 – 28 April 2020 and 03 July 2020 – 02 July 2025
Byrne, Ms. Louise	Ordinary Member	15 February 2023 – 14 February 2028
Kiely O'Connor, Ms. Vanessa	Ordinary Member	02 October 2023 – 01 October 2028
Houlihan, Ms. Elaine	Ordinary Member	02 October 2023 – 01 October 2028
Sheridan, Dr. Helen	Ordinary Member	21 December 2023 – 20 December 2028

The Authority has established five committees, as follows:

1. Audit and Risk Committee (ARC): comprises three Authority members and one external member. The role of the ARC is to support the Authority in relation to its responsibilities for issues of risk, control and governance and associated assurance. The ARC is independent from the financial management of the organisation. In particular the committee ensures that the internal control systems including audit activities are monitored actively and independently. The ARC reports to the Authority after each meeting, and formally in writing annually.

The members of this committee during 2023 were: Prof Thia Hennessy, Chairperson, Ms. Louise Byrne and Ms. Elizabeth Reynolds. The external member was Ms. Ita Howe. There were four meetings of the ARC in 2023.

2. Operations Committee (OC): comprises five Authority members. The role of the OC is to support the Authority in reviewing and considering matters relating to the Operations Programme in Teagasc and to report and make recommendations to the Authority, as well as adopting good practice.

The members of this committee during 2023 were: Mr. Liam Woulfe, Chairperson, Mr. Liam Herlihy, Ms. Elizabeth Reynolds, Ms. Martina Donnelly and Mr. Patrick Duffy. There were two meetings of the OC in 2023.

3. Advisory & Education Committee (AEC): comprises five Authority members. The role of the AEC is to support the Authority in reviewing and considering matters relating to the Advisory and Education Programmes in Teagasc and to report and make recommendations to the Authority, as well as adopting good practice. The members of this committee during 2023 were: Mr. John Buckley, Chairperson, Ms. Martina Donnelly, Mr. Patrick Duffy, Mr. Brian Rushe, and Mr. Donald Scully. There was one meeting of the AEC in 2023.

GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT

4. Research Committee (RC): comprises five Authority members. The role of the RC is to support the Authority in reviewing and considering matters relating to the Research Programme in Teagasc and to report and make recommendations to the Authority, as well as adopting good practice. The members of this committee during 2023 were: Prof. Gerald Fitzgerald, Chairperson, Mr. John Buckley, Ms. Martina Donnelly, Prof. Thia Hennessy, and Mr. Brian Rushe. There was one meeting of the RC in 2023.

5. Nominations Committee (NC): comprises five Authority members. The role of the NC is to consider vacancies on the Teagasc Authority and make recommendations on how best to fill the vacancies. The members of this committee during 2023 were: Mr. Liam Herlihy, Chairperson, Mr. Patrick Duffy, Prof. Gerald Fitzgerald, Prof. Thia Hennessy, and Ms. Elizabeth Reynolds. There were two meetings of the NC in 2023.

Schedule of attendance, fees and expenses

Schedule of attendances at the Authority and Committee meetings for 2023 is set out below including the fees and expenses received by each member:

Authority 2023	Meetings	04 Jan	01 Feb	01 Mar	05 Apr	03 May	07 Jun	05 Jul	06 Sep	04 Oct	01 Nov	06 Dec	Fees 2023 €	Expenses 2023 €
Herlihy, Mr. Liam		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	20,520	6,540
Buckley, Mr. John		✓	✓	✓	✓	✓	✓	✓	✓				8,977	2,331
Byrne, Ms. Louise				✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-
Donnelly, Ms. Martina		✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	-	4,465
Duffy, Mr. Patrick		✓	✓	✓	✓	✓	-	✓	✓				8,977	4,251
Fitzgerald, Prof. Gerald		✓	✓	✓	✓	✓	✓	✓	✓				8,977	2,255
Hennessy, Prof. Thia		-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	1,871
Houlihan, Ms. Elaine										-	✓	-	2,992	-
Kiely O'Connor, Ms. Vanessa										✓	✓	✓	2,992	384
O'Connell, Ms. Ellis		✓											-	72
Reynolds, Ms. Elizabeth		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11,970	1,838
Rushe, Mr. Brian		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11,970	72
Sheridan, Dr. Helen													-	-
Scully, Mr. Donald		✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	11,970	567
Woulfe, Mr. Liam		✓	✓	✓	-	✓	-	✓	✓	✓	✓	✓	11,970	1,966
													101,315	26,612

Teagasc incurred hospitality and accommodation expenses of €25,596 on behalf of Authority members in 2023. Four Authority members did not receive a fee under the One Person One Salary (OPOS) principle. Ms. Ita Howe, external member of the ARC, did not receive a fee under the One Person One Salary (OPOS) principle. UCC received €11,970 to compensate for costs of making Prof. Thia Hennessy available to sit on the Teagasc Authority.

Gender Balance in the Authority membership

As at 31 December 2023, the Authority had 7 (64%) female and 4 (36%) male members. The Government target as set out in the Annex to the Code of Practice for the Governance of State Bodies issued in September 2020 is a minimum of 40% representation of each gender in the membership of State Boards.

GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT

Audit & Risk Committee	23 Feb	05 Jul	20 Oct	06 Dec
Hennessy, Prof. Thia	√	√	√	√
Byrne, Ms. Louise		√	√	√
Howe, Ms. Ita	√	-	√	√
Reynolds, Ms. Elizabeth	√	√	√	√

Operations Committee	20 Feb	12 Sep
Duffy, Mr. Patrick	√	√
Donnelly, Ms. Martina	√	√
Herlihy, Mr. Liam	-	√
Reynolds, Ms. Elizabeth	√	√
Woulfe, Mr. Liam	√	-

Research Committee	07 Jun
Fitzgerald, Prof. Gerald	√
Buckley, Mr. John	√
Donnelly, Ms. Martina	√
Hennessy, Prof. Thia	√
Rushe, Mr. Brian	√

Advisory & Education Committee	03 May
Buckley, Mr. John	√
Donnelly, Ms. Martina	√
Duffy, Mr. Patrick	√
Rushe, Mr. Brian	√
Scully, Mr. Donald	√

Nominations Committee	05 Apr	01 Dec
Herlihy, Mr. Liam	√	√
Duffy, Mr. Patrick	√	
Fitzgerald, Prof. Gerald	√	
Hennessy, Prof. Thia	√	√
Reynolds, Ms. Elizabeth	√	√

Key personnel changes

There were four new appointments to the Authority and four retirements from the Authority in 2023.

GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT**Disclosures required by the Code of Practice for the Governance of State Bodies (2016)**

The Authority is responsible for ensuring that Teagasc has complied with the requirements of the Code of Practice for the Governance of State Bodies ("the Code"), as published by the Department of Public Expenditure and Reform in August 2016. The following disclosures are required by the Code:

Consultancy costs

Consultancy costs include the cost of external advice to management and exclude outsourced 'business-as-usual' functions.

	2023	2022
	€'000	€'000
Legal advice	186	279
Financial/ tax advice	24	43
Pensions/ human resources advice	139	125
Architectural/ engineering advice	723	942
Research advice	230	475
Other	264	391
Total consultancy costs	<u>1,566</u>	<u>2,255</u>
Consultancy costs capitalised	690	922
Consultancy costs charged to Income and Expenditure and Retained Revenue Reserves	876	1,333
Total	<u>1,566</u>	<u>2,255</u>

Legal costs and settlements

The expenditure in the reporting period on legal costs, settlements and conciliation and arbitration proceedings relating to contracts with third parties. This does not include expenditure incurred in relation to general legal advice received by Teagasc which is disclosed in consultancy costs above.

	2023	2022
	€'000	€'000
Legal fees – legal proceedings	28	29
Counterparty legal costs	-	-
Settlements	503	98
Total	<u>531</u>	<u>127</u>

The total number of cases included in the 2023 settlements is 49 (2022: 14).

Travel and subsistence expenditure

Travel and subsistence expenditure is categorised as follows:

	2023	2022
	€'000	€'000
Domestic		
Authority	27	27
Employees	4,738	4,025
Walsh Scholars	177	135
International		
Authority	-	-
Employees	890	637
Walsh Scholars	102	86
	<u>5,934</u>	<u>4,910</u>

GOVERNANCE STATEMENT AND AUTHORITY MEMBERS' REPORT

Hospitality expenditure

The Statement of Income and Expenditure includes the following hospitality expenditure:

	2023	2022
	€'000	€'000
Staff hospitality	42	37
Client hospitality	45	42
Total	87	79

In addition to the above in accordance with their employment/ placement agreements some staff and students are entitled to meals in college canteens. The cost of provision of these meals in 2023 was €54,969 (2022: €46,694).

Statement of compliance

The Authority has adopted the Code of Practice for the Governance of State Bodies (2016) and has put procedures in place to ensure compliance with the Code. Teagasc was in compliance with the Code of Practice for the Governance of State Bodies for 2023.

Teagasc is a signatory of the Charities Governance Code, which is overseen by the Irish Charities Regulator. The Authority reviewed and approved Teagasc's annual report form in October 2023.



Mr. Liam Herlihy
Chairman
24 June 2024



Ms. Martina Donnelly
Member of the Authority
24 June 2024

STATEMENT ON INTERNAL CONTROL

Scope of responsibility

On behalf of Teagasc I acknowledge the Authority's responsibility for ensuring that an effective system of internal control is maintained and operated. This responsibility takes account of the requirements of the Code of Practice for the Governance of State Bodies (2016) and the Charities Governance Code.

Purpose of the system of internal control

The system of internal control is designed to manage risk to a tolerable level rather than to eliminate it. The system can therefore only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded and that material errors or irregularities are either prevented or detected in a timely way.

The system of internal control, which accords with guidance issued by the Department of Public Expenditure and Reform, has been in place in Teagasc for the year ended 31 December 2023 and up to the date of approval of the financial statements.

Capacity to handle risk

Teagasc has an Audit and Risk Committee (ARC) comprising three Authority members, one of whom is the Chair, and one external member with financial and audit expertise. The ARC met four times in 2023.

Teagasc has also established an internal audit function which is adequately resourced and conducts a programme of work agreed with the ARC. The function is supported by external firms providing internal audit services.

The ARC has reviewed the risk management policy which sets out Teagasc's risk appetite, the risk management processes in place and details the roles and responsibilities of staff in relation to risk. The policy has been made available to all staff who are expected to work within Teagasc's risk management policies, to alert management on emerging risks and control weaknesses and assume responsibility for risks and controls within their own area of work.

Risk and control framework

Teagasc has implemented a risk management system which identifies and reports key risks and the management actions being taken to address and, to the extent possible, to mitigate those risks.

A risk register is in place which identifies the key risks facing Teagasc. The risks have been identified, evaluated and graded according to their significance. The register is reviewed by the Authority monthly and by the ARC quarterly. The outcome of these assessments is used to plan and allocate resources to ensure risks are managed to an acceptable level.

The risk register details the controls and actions needed to mitigate risks. Responsibility for operation of controls assigned to specific staff. I confirm that within the Teagasc control environment:

- procedures for all key business processes are documented,
- financial responsibilities are assigned at management level with corresponding accountability,
- there is an appropriate budgeting system with an annual budget which is kept under review by senior management,
- there are systems aimed at ensuring the security of the information and communication technology systems,
- there are systems in place to safeguard the assets, and
- control procedures over grant funding to outside agencies ensure adequate control over approval of grants and monitoring and review of grantees to ensure grant funding has been applied for the purpose intended.

Ongoing monitoring and review

Formal procedures have been established for monitoring control processes and control deficiencies are communicated to those responsible for taking corrective action, and to management and the Authority where relevant, in a timely way. I confirm that the following ongoing monitoring systems are in place:

- key risks and related controls have been identified and processes have been put in place to monitor the operation of those key controls and report any identified deficiencies,

STATEMENT ON INTERNAL CONTROL

- reporting arrangements have been established at all levels where responsibility for financial management has been assigned, and
- there are regular reviews by senior management of periodic and annual performance and financial reports which indicate performance against budgets/ forecasts.

Procurement

I confirm that Teagasc has procedures in place to ensure compliance with procurement rules and guidelines. Total procurement related expenditure was €74.5m in 2023.

Teagasc monitors the compliance status of its purchase orders. In 2023 Teagasc found that of 337 purchase orders for value in excess of €25,000, with total value of €40.0m, the value of non-compliant purchase orders was €186,064 (2022: €497,566). Notwithstanding that these procurements were non-compliant Teagasc is satisfied that good value for money was achieved.

Client settlements

I confirm that Teagasc has procedures in place to assure quality service delivery and fulfilment of contractual obligations to clients, and to respond to client complaints. In 2023 Teagasc paid €336,000 (2022 €77,000) in settlements to farmer clients who, having engaged Teagasc to prepare and submit applications and support administrative compliance for a range of DAFM schemes and regulations, were unsuccessful. Taking account of unresolved claims at 31 December Teagasc increased the provision for future settlements by €167,000 (2022 €21,000) with a total charge of €503,000 in the accounts. It can take years to settle complex cases and 21% (€72,000) of the 2023 payments related to issues arising pre 2014. Teagasc incurred €28,000 (2022 €29,000) on associated legal fees.

Teagasc advisory work related to DAFM regulations and schemes such as ACRES, increased significantly during 2022/23 with an increase in advisory income of over €4.7m in 2022 alone. Teagasc Terms of Engagement with clients have been recently reviewed and strengthened by our legal advisers and are now considered robust. Teagasc has also reverted to office consultations with clients (post Covid) which are important for avoiding errors in scheme applications. It is noted that DAFM is implementing improvements to its Ag Food platform which will be of considerable assistance given the complexity of Scheme applications.

Advance payment of grants

I confirm that Teagasc has procedures in place to ensure compliance of pre-funded grants. Teagasc provides advance grant funding to private agricultural colleges and to universities. Teagasc has engaged with the Department of Agriculture, Food and the Marine to seek derogated sanction from the Department of Public Expenditure, NDP Delivery and Reform to continue the practice of pre-funding grants in 2024. The formal DPENDR approval was not sought for 2023 due to oversight.

Review of effectiveness

I confirm that Teagasc has procedures to monitor the effectiveness of its risk management and control procedures which is informed by the work of the internal and external auditors, the Audit and Risk Committee which oversees their work, and the senior management within Teagasc responsible for the development and maintenance of the internal control framework.

I confirm that the Authority conducted an annual review of the effectiveness of the internal controls for 2023 on 07 February 2024.

Internal control issues

No weaknesses in internal control that require disclosure in the financial statements were identified in relation to 2023 apart from non-compliant purchase orders and settlements.



Mr. Liam Herlihy
Chairman
24 June 2024

CONSOLIDATED STATEMENT OF INCOME AND EXPENDITURE
YEAR ENDED 31 DECEMBER 2023

	Note	2023 €'000	2022 €'000
Income			
Oireachtas grants	4	168,577	159,805
EU funding	5	6,601	5,163
Livestock trading income		3,958	4,668
Operational income	6	46,951	48,932
Gain/ (Loss) on disposal of fixed assets	12	31	(44)
Other grants, donations and voluntary levies		4,034	3,690
Sale of goods		170	89
Research and technology services		2,009	2,200
Total Income		<u>232,331</u>	<u>224,503</u>
Expenditure	7	<u>(230,670)</u>	<u>(215,625)</u>
Operating surplus		1,661	8,878
Interest receivable		-	2
Surplus before transfers and taxation		1,661	8,880
Transfer to Capital Account	23	<u>(6,675)</u>	<u>(8,076)</u>
(Deficit)/ Surplus for the financial year before taxation		<u>(5,014)</u>	<u>804</u>
Taxation	11	<u>22</u>	<u>55</u>
(Deficit)/ Surplus for the financial year		<u>(4,992)</u>	<u>859</u>
(Deficit)/ Surplus attributable to			
Teagasc		(4,921)	1,041
Non-controlling interest		<u>(71)</u>	<u>(182)</u>
		<u>(4,992)</u>	<u>859</u>

The Statement of Cash Flow and Notes 1-35 form part of these financial statements.



Mr. Liam Herlihy
Chairman
24 June 2024




Professor Frank O'Mara
Director
24 June 2024

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
YEAR ENDED 31 DECEMBER 2023

		2023	2022
	Note	€'000	€'000
(Deficit)/ Surplus for the financial year		(4,992)	859
Actuarial (loss)/ gain on retirement benefit liabilities	10	(75,636)	458,987
Adjustment to deferred retirement benefit funding	10	75,636	(458,987)
Total comprehensive income for the year		<u>(4,992)</u>	<u>859</u>
Teagasc		(4,921)	1,041
Non-controlling interest		<u>(71)</u>	<u>(182)</u>
		<u>(4,992)</u>	<u>859</u>

The Statement of Cash Flow and Notes 1-35 form part of these financial statements.



Mr. Liam Herlihy
Chairman
24 June 2024



Professor Frank O'Mara
Director
24 June 2024

STATEMENT OF FINANCIAL POSITION
AS AT 31 DECEMBER 2023

	Note	Group		Teagasc	
		2023	2022	2023	2022
		€'000	€'000	€'000	€'000
Non-current assets					
Property, plant and equipment	12	150,109	143,675	138,707	132,029
Investments	14	807	647	808	648
		<u>150,916</u>	<u>144,323</u>	<u>139,515</u>	<u>132,677</u>
Current assets					
Inventories	15	6,471	7,423	6,471	7,423
Receivables: amounts falling due within one year	17	32,650	33,501	32,004	32,415
Cash and cash equivalents	18	44,752	45,873	42,172	43,582
		<u>83,873</u>	<u>86,796</u>	<u>80,647</u>	<u>83,420</u>
Payables: amounts falling due within one year					
Payables and accruals	19	23,907	22,906	22,778	21,764
Deferred income	21	27,636	28,779	27,475	28,471
		<u>51,543</u>	<u>51,685</u>	<u>50,253</u>	<u>50,235</u>
Net current assets		<u>32,330</u>	<u>35,111</u>	<u>30,395</u>	<u>33,185</u>
Total assets less current liabilities		<u>183,246</u>	<u>179,434</u>	<u>169,910</u>	<u>165,862</u>
Provisions for liabilities					
Deferred tax	22	(39)	(17)	-	-
Payables: amounts falling due after one year					
Deferred income	21	15,408	13,260	15,396	13,201
Payables and accruals	20	406	406	-	-
		<u>167,471</u>	<u>165,785</u>	<u>154,514</u>	<u>152,661</u>
Deferred retirement benefit funding	10	1,039,209	957,928	1,039,209	957,928
Retirement benefit liabilities	10	(1,039,209)	(957,928)	(1,039,209)	(957,928)
Net assets		<u>167,471</u>	<u>165,785</u>	<u>154,514</u>	<u>152,661</u>
Capital and reserves					
Capital account	23	138,707	132,029	138,707	132,029
Revenue reserves	24	16,019	21,011	15,807	20,632
Capital contribution		12,745	12,745	-	-
		<u>167,471</u>	<u>165,785</u>	<u>154,514</u>	<u>152,661</u>
Reserves attributable to Teagasc		161,032	159,275	154,514	152,661
Non-controlling interest		6,439	6,510	-	-
		<u>167,471</u>	<u>165,785</u>	<u>154,514</u>	<u>152,661</u>

The Statement of Cash Flow and Notes 1-35 form part of these financial statements.



Mr. Liam Herlihy
Chairman
24 June 2024



Professor Frank O'Mara
Director
24 June 2024

CONSOLIDATED STATEMENT OF CHANGES IN CAPITAL AND RESERVES
AS AT 31 DECEMBER 2023

GROUP

		Capital account	Capital contribution	Revenue reserves	Capital contribution	Total
				Non- controlling interest	Non- controlling interest	
	Note	€'000	€'000	Group €'000	€'000	€'000
At 1 January 2022		123,953	6,400	19,805	347	156,850
Surplus/ (deficit) for the year		-	-	1,041	(182)	859
Actuarial gain on retirement benefit liabilities	10	-	-	458,987	-	458,987
Adjustment to deferred retirement benefit funding	10	-	-	(458,987)	-	(458,987)
Total comprehensive income		-	-	1,041	(182)	859
Addition to capital contribution		-	-	-	-	-
Amounts capitalised in respect of purchased assets	12	17,355	-	-	-	17,355
Net amount released on disposals	12	50	-	-	-	50
Less: amortised in line with asset depreciation	12	(9,230)	-	-	-	(9,230)
At 31 December 2022		132,029	6,400	20,846	165	165,785
			159,275		6,510	165,785
(Deficit) for the year		-	-	(4,921)	(71)	(4,992)
Actuarial loss on retirement benefit liabilities	10	-	-	(75,636)	-	(75,636)
Adjustment to deferred retirement benefit funding	10	-	-	75,636	-	75,636
Total comprehensive income		-	-	(4,921)	(71)	(4,992)
Amounts capitalised in respect of purchased assets	12	17,076	-	-	-	17,076
Net amount released on disposals	12	(1)	-	-	-	(1)
Less: amortised in line with asset depreciation	12	(10,397)	-	-	-	(10,397)
At 31 December 2023		138,707	6,400	15,925	94	167,471
			161,032		6,439	167,471

The Statement of Cash Flow and Notes 1-35 form part of these financial statements.

STATEMENT OF CHANGES IN CAPITAL AND RESERVES
AS AT 31 DECEMBER 2023

TEAGASC

		Capital account	Revenue reserves	Total
	Note	€'000	€'000	€'000
At 1 January 2022		123,953	19,351	143,304
Surplus for the year		-	1,281	1,281
Actuarial gain on retirement benefit liabilities	10	-	458,987	458,987
Adjustment to deferred retirement benefit funding	10	-	(458,987)	(458,987)
Total comprehensive income		-	1,281	1,281
Amounts capitalised in respect of purchased assets	12	17,355	-	17,355
Net amount released on disposals	12	(50)	-	(50)
Less: amortised in line with asset depreciation	12	(9,230)	-	(9,230)
At 31 December 2022		132,029	20,632	152,661
Deficit for the year		-	(4,825)	(4,825)
Actuarial loss on retirement benefit liabilities	10	-	(75,636)	(75,636)
Adjustment to deferred retirement benefit funding	10	-	75,636	75,636
Total comprehensive income		-	(4,825)	(4,825)
Amounts capitalised in respect of purchased assets	12	17,076	-	17,076
Net amount released on disposals	12	(1)	-	(1)
Less: amortised in line with asset depreciation	12	(10,397)	-	(10,397)
At 31 December 2023		138,707	15,807	154,514

The Statement of Cash Flow and Notes 1-35 form part of these financial statements.

CONSOLIDATED STATEMENT OF CASH FLOW
AS AT 31 DECEMBER 2023
GROUP

		2023	2022
	Note	€'000	€'000
Cash flow from operating activities	27	16,599	12,556
Interest paid		-	(121)
Taxation		-	-
Net cash flow from operating activities		<u>16,599</u>	<u>12,435</u>
Cash flow from investing activities			
Payments to acquire tangible fixed assets	12	(17,768)	(17,779)
Receipts from sales of tangible fixed assets	12	48	53
Payments to acquire investments	14	-	-
Interest received		-	2
Net cash used in investing activities		<u>(17,720)</u>	<u>(17,724)</u>
Net decrease in cash and cash equivalents		(1,122)	(5,289)
Cash and cash equivalents at 1 January		<u>45,873</u>	<u>51,162</u>
Cash and cash equivalents at 31 December		<u>44,752</u>	<u>45,873</u>
Cash and cash equivalents consists of:			
Cash at bank and in hand	18	39,751	25,486
Short term deposits	18	<u>5,001</u>	<u>20,387</u>
Cash and cash equivalents at 31 December		<u>44,752</u>	<u>45,873</u>

The Statement of Cash Flow and Notes 1-35 form part of these financial statements.

NOTES TO THE FINANCIAL STATEMENTS**1. General information**

Teagasc (the Agriculture and Food Development Authority of Ireland) was established under the Agriculture (Research, Training and Advice) Act, 1988. The mission of Teagasc is to support science-based innovation in the agri-food sector and the broader bioeconomy that will underpin profitability, competitiveness and sustainability. Teagasc's principal and registered office is at Oak Park, Carlow.

Teagasc owns a 57% share in Moorepark Technology Limited whose principal activity is the provision of services for Research and Development.

2. Summary of significant accounting policies

The basis of accounting, and significant accounting policies adopted by Teagasc, are set out below. They have all been applied consistently throughout the year and for the preceding year.

2.1 Statement of compliance

The financial statements of Teagasc for the year ended 31 December 2023 have been prepared in accordance with FRS 102, the financial reporting standard applicable in the UK and Ireland issued by the Financial Reporting Council (FRC).

2.2 Basis of consolidation

For the purposes of these financial statements, the 'Teagasc Group' comprises the parent entity Teagasc and its subsidiary Moorepark Technology Limited. The accounting policies and accounting period of the subsidiary are consistent with those of the Group. Inter-company transactions and balances and gains on transactions between group companies are eliminated. The investment in the subsidiary is accounted for at cost less impairment. Details of the subsidiary are provided in Note 14.

2.3 Basis of preparation

The financial statements have been prepared under the historical cost convention, except for certain assets and liabilities that are measured at fair values as explained in the accounting policies below. The financial statements are in the form approved by the Minister for Agriculture, Food and the Marine with the concurrence of the Minister for Public Expenditure and Reform under Section 12 of the Agriculture (Research, Training and Advice) Act, 1988 in conjunction with S.I. No.418 of 2011. The following accounting policies have been applied consistently in dealing with items which are considered material in relation to Teagasc's financial statements.

2.4 Revenue recognition*Oireachtas grants*

Teagasc receives government grants in respect of research and other projects (revenue grants) and capital grants to fund capital investment. Revenue grants that do not include performance criteria are recognised as income on a cash receipts basis. Grants received which impose specific performance criteria are credited to deferred income and recorded as a creditor until the relevant performance criteria have been met and the grants are recognised as income.

Sale of goods

Revenue from the sale of goods is recognised when the significant risks and rewards of ownership of the goods have passed to the buyer, usually on dispatch of the goods, the amount of revenue can be measured reliably, it is probable that the economic benefits associated with the transaction will flow to the entity and the costs incurred or to be incurred in respect of the transaction can be measured reliably.

NOTES TO THE FINANCIAL STATEMENTS

Advisory fees

Teagasc receives income for annual advisory service contracts, annual discussion group contracts and additional advisory services provided. Income from annual advisory service contracts, and discussion group contracts, is recognised in the accounting period when the relevant invoice has issued. Income in relation to additional advisory services is recognised in the accounting period in which the service is rendered and the outcome of the contract can be estimated reliably.

Accrued income

Income earned on goods/ services delivered, but unbilled, is recognised in accordance with contractual terms as accrued income on the Statement of Financial Position. Income earned on research projects, but unclaimed, is recognised as accrued income on the Statement of Financial Position, taking into account the individual rules of all funding bodies.

Royalty income

Royalty income is recognised on an accruals basis in accordance with the substance of the relevant agreements.

Tuition fees

Revenue is recognised over the period of instruction.

Comparative figures

Comparative figures have been regrouped and reanalysed, where necessary, on the same basis as those for the current period.

2.5 Employee benefits

The Group provides a range of benefits to employees, including paid holiday arrangements and defined benefit pension plans.

Short term benefits

Short term benefits, including holiday pay and other similar non-monetary benefits, are recognised as an expense in the period in which the service is receivable.

Defined benefit pension plans

The Group operates defined benefit pension schemes which are funded annually on a pay as you go basis from monies available to it, including monies provided by the Department of Agriculture, Food and the Marine, and from contributions deducted from staff salaries. Pension Scheme liabilities are measured on an actuarial basis using the projected unit method. Actuarial valuations are obtained annually and are updated at each Statement of Financial Position date.

Teagasc also operates the Single Public Services Pension Scheme (Single Scheme), which is the defined benefit scheme for pensionable public servants appointed on or after 01 January 2013. Single Scheme members' contributions are paid over to the Department of Public Expenditure and Reform.

Retirement benefit costs reflect retirement benefits earned by employees in the period and are shown net of staff pension contributions which are retained by the Group. The Single Public Services Pension Scheme contributions are remitted to the Department of Public Expenditure and Reform. An amount corresponding to the retirement benefit charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge retirement benefit payments. Actuarial gains or losses arising from changes in actuarial assumptions and from experience surpluses and deficits are recognised in the Consolidated Statement of Comprehensive Income for the year and a corresponding adjustment is recognised in the amount recoverable from the Department of Agriculture, Food and the Marine.

Retirement benefit liabilities represent the present value of future retirement benefit payments earned by staff to date. Deferred retirement benefit funding represents the corresponding asset to be recovered in future periods from the Department of Agriculture, Food and the Marine.

NOTES TO THE FINANCIAL STATEMENTS

2.6 Leases

At inception Teagasc assesses agreements that transfer the right to use assets. The assessment considers whether the arrangement is, or contains, a lease based on the substance of the arrangement.

Operating leases

Leases that do not transfer all the risks and rewards of ownership are classified as operating leases. Payments under operating leases are charged to the income statement on a straight-line basis over the period of the lease.

2.7 Taxation

The taxation expense for the period comprises current and deferred tax recognised in the reporting period. Tax is recognised in the income statement. Current or deferred taxation assets and liabilities are not discounted.

Current tax

Current tax is the amount of income tax payable in respect of the taxable profit for the year or prior years. Tax is calculated on the basis of tax rates and laws that have been enacted or substantively enacted by the period end.

Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred tax

Deferred tax arises from timing differences that are differences between taxable profits and total comprehensive income as stated in the financial statements. These timing differences arise from the inclusion of income and expenses in tax assessments in periods different from those in which they are recognised in financial statements.

Deferred tax is recognised on all timing differences at the reporting date except for certain exceptions. Unrelieved tax losses and other deferred tax assets are only recognised when it is probable that they will be recovered against the reversal of deferred tax liabilities or other future taxable profits.

Deferred tax is measured using tax rates and laws that have been enacted or substantively enacted by the period end and that are expected to apply to the reversal of the timing difference.

2.8 Research and development

Expenditure on research activities is recognised as an expense in the period in which it is incurred.

2.9 Tangible assets

Property, plant and equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Such costs include costs directly attributable to making the asset capable of operating as intended.

Land is not depreciated. Assets under construction are not depreciated. Depreciation is provided on all property, plant and equipment at rates calculated to write off the cost, less estimated residual value, of each asset on a systematic basis over its expected useful life as follows:

Computer equipment	3 years
Plant and vehicles	5 years
Laboratory and office equipment	10 years
Industrial plant and equipment	10 years
Farm buildings	20 years
Industrial and manufacturing buildings	30 years
Other buildings	50 years

A half year's depreciation is charged in the year of acquisition and disposal of assets.

NOTES TO THE FINANCIAL STATEMENTS

The carrying values of property, plant and equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable. If there is an indication of impairment the impairment loss, or the reversal of an impairment loss, is recognised immediately in the Consolidated Statement of Income and Expenditure.

The estimated useful lives, residual values and depreciation methods are reviewed, and adjusted as appropriate, at the end of each financial year.

The gain or loss, being the difference between the sales proceeds and the carrying amount of the asset, arising on disposal or retirement of an item of property, plant and equipment is recognised in the Consolidated Statement of Income and Expenditure. Any amount in the revaluation reserve relating to that asset is transferred to retained earnings directly.

Fully depreciated plant and equipment is retained in the financial statements until it is no longer in use.

Assets for re-sale

Tangible assets are classified as held for sale when the carrying amount is expected to be recovered principally through a sale transaction and a sale is highly probable. They are stated at the lower of carrying amount or fair value less cost to sell.

Impairment of non-financial assets

At each financial year end date non-financial assets not carried at fair value are assessed to determine whether there is an indication that the asset (or asset's cash generating unit) may be impaired. If there is such an indication the recoverable amount of the asset (or asset's cash generating unit) is compared to the carrying amount of the asset (or asset's cash generating unit).

2.10 Financial assets

Investment in subsidiary

The investment in the subsidiary Moorepark Technology Limited is measured at cost less impairment. If there is objective evidence of impairment, an impairment loss is recognised in the Consolidated Statement of Income and Expenditure in the year.

Other investments

Investments listed on a recognised stock exchange are measured at their fair value, and movements are recorded through the Consolidated Statement of Income and Expenditure and the Consolidated Statement of Comprehensive Income. Other financial assets comprising investments in unquoted shares and financial investments are measured at their fair value if this can be reliably determined; otherwise they are measured at the value attributed to them at the date of acquisition less impairment. If there is objective evidence of impairment, an impairment loss is recognised in the Consolidated Statement of Income and Expenditure and the Consolidated Statement of Comprehensive Income in the year.

2.11 Inventory

Biological assets

Livestock and own farm produce are valued using the fair value model. Fair value is determined on the basis that animals and own farm produce are sold on the open market. Gains and losses, which arise from these valuations, are reflected in full in operational income.

Other inventory

All other inventory is stated at the lower of cost and net realisable value.

2.12 Receivables

Receivables are recognised at fair value, less a provision for impairments. The provision for impairments is a specific provision, and is established when there is objective evidence that Teagasc will not be able to collect all amounts owed to it. All movements in the provision for impairments are recognised in the Consolidated Statement of Income and Expenditure.

NOTES TO THE FINANCIAL STATEMENTS

2.13 Payables

Payables, including trade and other payables and deferred income, are initially recognised at transaction price, unless the arrangement constitutes a financing transaction, where the debt instrument is measured at the present value of the future receipts discounted at a market rate of interest. Advanced research income, where a portion of the funds is due to be paid to partnering organisations, is included in deferred income.

2.14 Provisions and contingencies

Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount of the obligation can be estimated reliably.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to passage of time is recognised as a finance cost.

Contingencies

Contingent liabilities, arising as a result of past events, are not recognised when (i) it is not probable that there will be an outflow of resources or that the amount cannot be reliably measured at the reporting date or (ii) when the existence will be confirmed by the occurrence or non-occurrence of uncertain future events not wholly within the Group's control. Contingent liabilities are disclosed in the financial statements unless the probability of an outflow of resources is remote.

Contingent assets are not recognised. Contingent assets are disclosed in the financial statements when an inflow of economic benefits is probable.

3. Critical accounting estimates and judgements

The preparation of the financial statements requires management to make judgements, estimates and assumptions that affect the amounts reported for assets and liabilities as at the Statement of Financial Position date and the amounts reported for revenues and expenses during the year. However, the nature of estimation means that actual outcomes could differ from those estimates.

The following judgements have had the most significant effect on amounts recognised in the financial statements:

Useful economic lives of property, plant and equipment

The Group depreciates the tangible fixed assets over their estimated useful lives after taking into account their estimated residual values. The estimated useful life reflects management's estimate of the period that the Group intends to derive future economic benefits from the use of the Group's tangible fixed assets. The residual value reflects management's estimated amount that the Group would currently obtain from the disposal of the asset, after deducting the estimated costs of disposal, as if the asset were already of the age and in the condition expected at the end of its useful life. Changes in the expected level of usage and technological developments could affect the economics, useful lives and the residual values of these assets which could then consequentially impact future depreciation charges. See Note 12 for the carrying amount of tangible fixed assets.

Valuation of investments

At the end of each financial year, an assessment is made on whether there are indicators that Teagasc's investment in the subsidiary is impaired. Where necessary, Teagasc's assessments are based on the estimation of the value-in-use of the assets by forecasting the expected future cash flows for a period of up to 5 years, using a suitable discount rate in order to calculate the present value of those cash flows. See Note 14 for the carrying amount of investments.

NOTES TO THE FINANCIAL STATEMENTS*Impairment of receivables*

Teagasc assesses receivables on a continuous basis for any objective evidence of impairment by considering factors, including the ageing profile, the creditworthiness and the past collection history of each debtor. If the financial conditions of these debtors were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required. See Note 17 for the carrying amount of trade and other receivables.

Retirement benefit obligation

and the present value of the obligation depend on a number of factors, including; life expectancy, salary increases, asset valuations and the discount rate on corporate bonds. Management estimates these factors in determining the net retirement benefit obligation in the Statement of Financial Position. The assumptions reflect historical experience and current trends. See Note 10 for the disclosures relating to the retirement benefit scheme.

Provisions

The Group makes provisions for legal and constructive obligations, which it knows to be outstanding at the year-end date. These provisions are generally made based on historical or other pertinent information, adjusted for recent trends where relevant. However, they are estimates of the financial costs of events that may not occur for some years. As a result of this and the level of uncertainty attaching to the financial outcomes, the actual outcome may differ significantly from that estimated.

NOTES TO THE FINANCIAL STATEMENTS**4. Oireachtas grants**

		2023	2022
	Subhead	€'000	€'000
Vote 30: Agriculture, Food and the Marine Grant-in-aid for general expenses	C.5	146,023	138,504
Grant for human resource purposes	C.5	10,500	10,500
Food research and agriculture research	C.3	6,339	5,007
Agricultural and equine simulators	C.3.5	114	1,426
Agricultural catchments programme	B.3	2,852	2,570
National Prepared Consumer Foods centre	C.4	652	554
National carbon observatory	C.10	530	2,178
Grant for forestry publicity and awareness and training	B.10	738	670
Grant for forestry education	B.10	45	37
Retirement Benefit Funding			
Net deferred funding for retirement benefits		5,645	2,535
ASC remitted to Vote 30		(3,340)	(2,901)
Single public sector pension scheme remitted to DPER		(1,521)	(1,274)
		<u>168,577</u>	<u>159,805</u>

A grant without any performance criteria is recognised in income when the grant proceeds are received. Oireachtas grants received which impose specified future performance conditions are recognised in income when those conditions have been met. Oireachtas grants, received before income recognition is satisfied, are recorded as separate liabilities in the Statement of Financial Position. At year end, Teagasc had unfilled conditions included in the Statement of Financial Position as liabilities with respect to the following:

		2023	2022
	Note	€'000	€'000
Food research and agriculture research	21	7,498	6,217
National carbon observatory	21	150	680
National Prepared Consumer Foods centre	21	477	1,029
AgNav	21	2,000	-
Agricultural and equine simulators	21	453	66
		<u>10,578</u>	<u>7,992</u>

5. EU funding

	2023	2022
	€'000	€'000
Farm Survey Income	166	148
INTERREG	347	301
Marie Curie	-	116
Horizon 2020	3,693	4,240
Horizon Europe	1,596	57
Other EU Income	799	301
	<u>6,601</u>	<u>5,163</u>

Horizon 2020, which commenced in 2015, ran to the end of 2020 and was the main financial tool through which the European Union supports research and development activities covering almost all scientific disciplines. Horizon Europe commenced in 2021 replacing Horizon 2020.

NOTES TO THE FINANCIAL STATEMENTS

5. EU funding (continued)

A grant without any performance criteria is recognised in income when the grant proceeds are received. EU grants received which impose specified future performance conditions are recognised in income when those conditions have been met. EU grants, received before income recognition is satisfied, are recorded as separate liabilities in the Statement of Financial Position. At year end, Teagasc had unfilled conditions included in the Statement of Financial Position as liabilities with respect to the following:

	Note	2023 €'000	2022 €'000
Horizon 2020		4,383	7,385
Horizon Europe		6,928	4,941
Marie Curie		202	155
Other EU Income		3,098	619
	21	<u>14,611</u>	<u>13,100</u>

6. Operational income

	Operations €'000	Knowledge Transfer €'000	Research €'000	2023 €'000	2022 €'000
Advisory service fees	-	14,101	54	14,155	15,804
Course fee income	-	5,238	594	5,832	5,608
El/ SFI and other state agencies research	-	1,109	9,704	10,813	11,800
Collaborative/ co-funding industry research	-	-	4,792	4,792	4,103
Other fees	51	1,825	3,525	5,401	4,289
Other farming operations	-	1,174	2,736	3,910	5,370
Publications and miscellaneous	170	1,080	798	2,048	1,958
	<u>221</u>	<u>24,527</u>	<u>22,203</u>	<u>46,951</u>	<u>48,932</u>

A grant without any performance criteria is recognised in income when the grant proceeds are received. State agency grants received which impose specified future performance conditions are recognised in income when those conditions have been met. State agency grants, received before income recognition is satisfied, are recorded as separate liabilities in the Statement of Financial Position. At year end, Teagasc had unfilled conditions included in the Statement of Financial Position as liabilities with respect to the following:

	Note	2023 €'000	2022 €'000
Science Foundation Ireland	21	9,106	11,204
Enterprise Ireland	21	1,991	2,521
		<u>11,097</u>	<u>13,725</u>

NOTES TO THE FINANCIAL STATEMENTS**7. Expenditure**

	Operations	Knowledge Transfer	Research	2023	2022
	€'000	€'000	€'000	€'000	€'000
Pay (Note 9)	8,307	40,257	51,504	100,068	94,039
Travelling and subsistence	298	2,717	2,926	5,941	4,914
General operating expenses (Note 8)	12,046	14,004	28,931	54,981	50,478
Financial charges	225	173	1	399	421
Depreciation (Note 12)	460	2,076	8,782	11,318	10,064
Grants to private colleges (Note 28)	-	3,016	-	3,016	3,203
Student grants	-	335	-	335	509
Cost of livestock purchases	-	16	337	353	816
Cost of research and development services	-	-	273	273	237
Walsh scholarship grants	-	676	5,279	5,955	5,768
Other grants	313	1	60	374	455
	<u>21,649</u>	<u>63,272</u>	<u>98,093</u>	<u>183,014</u>	<u>170,904</u>
Staff training				775	834
Retirement benefits (Note 10)				46,881	43,888
				<u>230,670</u>	<u>215,626</u>

In 2023 148 (2022: 151) staff received overtime payments. The highest aggregate amount paid to an individual was €28,802 (2022: €28,393).

NOTES TO THE FINANCIAL STATEMENTS

8. Analysis of general operating expenses

	Operations	Knowledge Transfer	Research	2023	2022
	€'000	€'000	€'000	€'000	€'000
Farming supplies/ services	-	2,037	6,363	8,400	7,706
Maintenance/ repairs	1,421	2,847	6,157	10,425	11,440
Rents/ rates/ insurances	1,278	513	1,298	3,089	2,811
Postage/ telephones	635	1,212	337	2,184	2,025
Power/ fuel/ petrol	279	1,328	3,264	4,871	4,355
Laboratory supplies	-	-	5,387	5,387	4,609
Printing/ stationery/ publicity	757	1,463	1,061	3,281	3,251
Seminar/ classroom/ library supplies	34	1,641	973	2,648	2,511
Services of external agencies	1,132	1,158	1,621	3,911	3,163
Student and staff canteen supplies	113	778	572	1,463	1,212
Audit fee	77	-	16	93	97
ICT supplies/ services	5,956	165	633	6,754	4,945
Legal/ professional fees	313	185	488	986	1,462
Client settlements	-	503	-	503	98
Miscellaneous programme costs	11	102	706	819	684
Special events and miscellaneous	40	72	55	167	109
	<u>12,046</u>	<u>14,004</u>	<u>28,931</u>	<u>54,981</u>	<u>50,478</u>

9. Staff

The average number of staff employed by Teagasc during the year was as follows:

	2023	2022
Professional	923	856
Technical	148	154
Administrative/ clerical	261	242
Farm/ domestic	107	108
	<u>1,439</u>	<u>1,360</u>

Additional superannuation contributions of €3,339,881 (2022: €2,901,205) were deducted from salaries and paid to the Department of Agriculture, Food and the Marine. Effective from 1 January 2019, members of public service defined benefit pension schemes pay an additional superannuation contribution (ASC) arising from the Public Service Stability Agreement (2018 - 2020) and the Public Service Pay and Pensions Act 2017.

NOTES TO THE FINANCIAL STATEMENTS**9. Staff (continued)****Employee short-term benefits breakdown**

Employees' short-term benefits in excess of €60,000 are categorised into the following bands:

Employee benefits	Teagasc Number of employees
€60,000 to €69,999	224
€70,000 to €79,999	181
€80,000 to €89,999	110
€90,000 to €99,999	53
€100,000 to €109,999	24
€110,000 to €119,999	38
€120,000 to €129,999	27
€130,000 to €139,999	13
€140,000 to €149,999	2
€150,000 to €159,999	-
€160,000 to €169,999	3
€170,000 to €179,999	-
€180,000 to €189,999	1

Note: For the purposes of this disclosure, short-term employee benefits in relation to services rendered during the reporting period include salary, overtime, allowances and other payments made on behalf of the employee, but exclude employer's PRSI.

Aggregate employee benefits

	2023 €'000	2022 €'000
Staff short-term benefits	90,642	85,186
Termination benefits	-	-
Retirement benefit costs	46,881	43,888
Employer's contribution to social welfare	8,452	7,775
	<u>145,975</u>	<u>136,849</u>

The total number of staff employed (WTE) at year end was 1,490 (2022: 1,400). There were no termination benefits in 2023 (2022: nil).

Staff short-term benefits

	2023 €'000	2022 €'000
Basic pay	86,793	81,428
Overtime	1,122	1,132
Allowances	2,727	2,626
	<u>90,642</u>	<u>85,186</u>

NOTES TO THE FINANCIAL STATEMENTS

9. Staff (continued)

Key management personnel

Key management personnel in Teagasc consist of the members of the Authority, the Director and three divisional directors reporting to the Director. The total value of employee benefits for key management personnel is set out below:

	2023	2022
	€'000	€'000
Salaries and other short term benefits:		
Key management remuneration	788	745
	<u>788</u>	<u>745</u>

This does not include the value of retirement benefits earned in the period. The key management personnel, except for those on the Authority, are members of the Teagasc pension scheme and their entitlements in that regard do not extend beyond the terms of the model public defined benefit superannuation scheme.

Director's salary and benefits

The Director's remuneration for the financial period was as follows:

	2023	2022
	€'000	€'000
Basic pay	184	178
Total remuneration	<u>184</u>	<u>178</u>

The Director is a member of the Teagasc pension scheme and his entitlements in that regard do not extend beyond the model public sector defined benefit superannuation scheme. The value of retirement benefits earned in the period is not included above.

10. Retirement benefit plans

Section 9 of the Agriculture (Research, Training and Advice) Act, 1988 provides for the establishment of schemes for the granting of retirement benefits in respect of staff appointed by Teagasc and staff transferred to Teagasc from An Chomhairle Oiliúna Talmhaíochta and from An Foras Talúntais.

Pending the approval of draft pension schemes by the Minister for Agriculture, Food and the Marine, the Minister for Finance and the Oireachtas, Teagasc operates pension schemes on an administrative basis. At 31 December 2023 this approval remained outstanding.

Teagasc also administers two pension schemes (the Agricultural Colleges Staff Pension Scheme 1985 and the Agricultural Colleges Spouses' and Children's Contributory Pension Scheme 1985) in respect of certain staff employed by privately owned Colleges of Agriculture and Horticulture, the cost of whose salaries is borne by the exchequer through the agency of Teagasc.

The above schemes are defined benefit pension schemes. No separate fund is maintained and no assets are held to finance the payment of retirement benefits and gratuities. The actuarial estimate of future liabilities accruing in regard to future benefits is shown on the Statement of Financial Position.

NOTES TO THE FINANCIAL STATEMENTS**10. Retirement benefit plans (continued)**

The average number of monthly retirement benefits paid during the year was 1,768 (2022: 1,745).

i. Analysis of total retirement benefit costs charged to income and expenditure account

	2023	2022
	€'000	€'000
Current service cost	15,976	31,690
Interest on scheme liabilities	38,830	19,492
Staff contributions	(4,585)	(4,393)
Additional Superannuation contributions	(3,340)	(2,901)
	<u>46,881</u>	<u>43,888</u>

ii. Movement in net retirement benefit liability during the financial year

	2023	2022
	€'000	€'000
Net retirement benefit liability at 01 January	957,928	1,414,380
Current service cost	15,976	31,690
Benefits paid	(49,161)	(48,647)
Interest on scheme liabilities	38,830	19,492
Actuarial loss/ (gain)	75,636	(458,987)
Net retirement benefit liability at 31 December	<u>1,039,209</u>	<u>957,928</u>

iii. Deferred funding asset for retirement benefits

Teagasc recognises as an asset an amount corresponding to the unfunded deferred liability for retirement benefits on the basis of the set of assumptions described below and a number of past events. These events include the statutory basis for the establishment of the pension schemes, and the policy and practice currently in place in relation to funding public service pensions including contributions by employees and the annual estimates process. While there is no formal agreement regarding these specific amounts with the Department of Agriculture, Food and the Marine, Teagasc has no evidence that this funding policy will not continue to meet such sums in accordance with current practice.

Net deferred funding for retirement benefits in the year

	2023	2022
	€'000	€'000
Funding recoverable in respect of current years retirement benefits	54,806	51,182
Resources applied to pay retirement benefits	(49,161)	(48,647)
	<u>5,645</u>	<u>2,535</u>

The deferred funding asset for retirement benefits as at 31 December 2023 was €1,039m (2022: €957m).

NOTES TO THE FINANCIAL STATEMENTS

10. Retirement benefit plans (continued)

iv. History of defined benefit obligations

	2023	2022	2021	2020
	€'000	€'000	€'000	€'000
Experience (loss)	(25,710)	(14,690)	-	(59,697)
Percentage of present value of scheme liabilities	2.5%	1.5%	0.0%	4.4%
Changes in assumptions	(49,926)	473,677	(54,458)	(15,729)
Percentage of present value of scheme liabilities	4.8%	49.4%	3.9%	1.2%
Actuarial (loss)/ gain recognised in other comprehensive income	(75,636)	458,987	(54,458)	(75,420)

The cumulative actuarial gain recognised in the Statement of Comprehensive Income amounts to €72.831m (2022: €148.458m).

v. General description of the scheme

The pension schemes are defined benefit final salary pension arrangements with benefits and contributions defined by reference to current "model" public sector scheme regulations. The schemes provide a retirement benefit (one eightieth per year of service), a gratuity lump sum (three eightieths per year of service) and spouse's and children's retirement benefits. Retirement age for pre 01 April 2004 members will be compulsory on reaching age 70. These members also have an entitlement to retire without actuarial reduction from age 60. Public servants appointed on or after 01 April 2004 and pre 01 January 2013 have a minimum retirement age of 65. Retirement benefits in payment (and deferment) normally increase or decrease in line with general public sector salary inflation.

Teagasc operates the Single Public Service Retirement Benefits Scheme (Single Scheme) which is the defined benefit scheme for pensionable public servants appointed on or after 01 January 2013. The scheme is based on a career averaging model. Retirement for those entrants will be compulsory on reaching age 70.

The valuation used for disclosures has been based on an actuarial valuation by a qualified independent actuary on 29 January 2024 in order to assess the scheme liabilities at 31 December 2023.

The principal actuarial assumptions used to calculate liabilities are as follows:

	2023	2022
	% per annum	% per annum
Inflation rate	2.40	2.60
Salary rate	3.90	4.10
State pension	3.90	4.10
Pension rate – Main Scheme	3.15	3.35
Pension rate – Single Scheme	2.40	2.60
Scheme liabilities discount rate	3.60	4.15

NOTES TO THE FINANCIAL STATEMENTS

10. Retirement benefit plans (continued)

The mortality basis adopted allows for improvements in life expectancy over time, so that life expectancy at retirement will depend on the year in which a member attains retirement age (age 65). The table below shows the life expectancy for members attaining age 65 in 2023 and 2042.

Year of attaining 65	2023	2042
Life expectancy - males	86.60	88.20
Life expectancy - females	89.10	90.60

On the basis of these and other assumptions and applying the projected unit method the present value of pension scheme liabilities is as follows:

	2023 €'000	2022 €'000
Total accrued retirement benefit liability	1,039,209	957,928

11. Tax on profit on ordinary activities

	2023 €'000	2022 €'000
Based on results for the year:		
Current tax charge	-	-
Deferred tax (Note 22)	(22)	(55)
	<u>(22)</u>	<u>(55)</u>
Provision in respect of prior years:		
Corporation tax	-	-
	<u>(22)</u>	<u>(55)</u>

The tax charge for the year is lower than the charge that would result from applying the standard rate of Irish corporation tax to the profit on ordinary activities. The differences are explained as follows:

	2023 €'000	2022 €'000
(Loss)/ profit on ordinary activities before taxation	(5,519)	804
(Loss)/ profit on ordinary activities multiplied by Standard rate of corporation tax in Ireland -12.5%	(690)	101
Effects of:		
Excess of capital allowances over depreciation	(21)	(36)
Higher tax rate on profits	4	4
Unutilised trading losses	41	92
Parent loss/ (profit) on ordinary activities multiplied by 12.5%	666	(160)
Current tax charge for the year	<u>-</u>	<u>-</u>

The tax charge arises in the operations of the subsidiary Moorepark Technology Limited.

NOTES TO THE FINANCIAL STATEMENTS

12. Property, plant and equipment

GROUP

	Land €'000	Buildings €'000	Assets under construction €'000	Plant and equipment €'000	Total €'000
Cost or valuation					
At 1 January 2022	6,697	168,636	6,785	109,941	292,059
Additions	-	2,564	2,723	12,492	17,779
Assets completed	-	679	(2,464)	1,785	-
Disposals	-	(78)	-	(729)	(807)
At 31 December 2022	6,697	171,801	7,044	123,489	309,031
Additions	-	4,377	5,204	8,188	17,769
Assets completed	-	5,657	(5,753)	96	-
Disposals	-	(32)	-	(642)	(674)
Reclassification	-	-	-	-	-
At 31 December 2023	6,697	181,803	6,495	131,131	326,126
Accumulated depreciation and impairment losses					
At 1 January 2022	-	73,551	60	82,393	156,004
Charge for year	-	4,294	-	5,769	10,063
Disposals	-	(35)	-	(676)	(711)
At 31 December 2022	-	77,810	60	87,486	165,356
Charge for year	-	4,569	-	6,749	11,318
Disposals	-	(17)	-	(640)	(657)
At 31 December 2023	-	82,362	60	93,595	176,017
Carrying value					
At 31 December 2023	6,697	99,441	6,435	37,537	150,109
At 31 December 2022	6,697	93,991	6,984	36,003	143,675

NOTES TO THE FINANCIAL STATEMENTS

12. Property, plant and equipment (continued)

TEAGASC

	Land	Buildings	Assets under construction	Plant and equipment	Total
	€'000	€'000	€'000	€'000	€'000
Cost or valuation					
At 1 January 2022	6,697	156,134	5,022	103,021	270,874
Additions	-	2,553	2,685	12,117	17,355
Assets completed	-	679	(679)	-	-
Disposals	-	-	-	(665)	(665)
Reclassification	-	-	-	-	-
At 31 December 2022	6,697	159,367	7,027	114,474	287,564
Additions	-	3,770	5,204	8,098	17,075
Assets completed	-	5,626	(5,721)	95	-
Disposals	-	-	-	(604)	(604)
Reclassification	-	-	-	-	-
At 31 December 2023	6,697	168,763	6,510	122,064	304,036
Accumulated depreciation and impairment losses					
At 1 January 2022	-	69,369	60	77,492	146,921
Charge for year	-	3,881	-	5,349	9,230
Disposals	-	-	-	(616)	(616)
At 31 December 2022	-	73,250	60	82,225	155,535
Charge for year	-	4,155	-	6,242	10,397
Disposals	-	-	-	(603)	(603)
At 31 December 2023	-	77,405	60	87,864	165,329
Carrying value					
At 31 December 2023	6,697	91,358	6,450	34,200	138,707
At 31 December 2022	6,697	86,116	6,967	32,249	132,029

Certain fixed assets entrusted to Teagasc are protected by statute, and may not be sold.

Teagasc has 55 offices/colleges/centres of which 50 are owned by Teagasc and the remaining 5 are rented. Two of the rental agreements expire in less than one year, one between two and five years and one agreement is a long term lease of greater than five years. The remaining agreement is currently under negotiation.

NOTES TO THE FINANCIAL STATEMENTS

12. Property, plant and equipment (continued)

Disposal of property, plant and equipment

	Proceeds/ costs	Proceeds/ costs
	2023	2022
	€'000	€'000
Proceeds from sale of non-property assets	48	53
Net book value of fixed assets disposed	(17)	(97)
Gain / (Loss) on disposal of fixed assets	31	(44)

13. Heritage assets

Group and Teagasc

Period houses in Kildalton College, Ballyhaise College and Oak Park Research Centre are part of the working infrastructure of Teagasc, and are as such capitalised on the Statement of Financial Position at original cost.

Certain heritage assets at Johnstown Castle Research Centre, including the castle, agricultural museum and walled garden were not originally recognised in the Statement of Financial Position as information on the cost or value of these heritage assets could not be obtained at a cost which was commensurate with the benefits to users of the financial statements. These assets were subsequently developed as a tourist and heritage attraction. The development project involved renovation of the castle and construction of a visitor centre which became operational in 2019. The centre is managed and operated by Irish Heritage Trust. All construction costs have been capitalised and are depreciated in line with Teagasc's property, plant and equipment accounting policy.

NOTES TO THE FINANCIAL STATEMENTS

14. Investments

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Investment in quoted shares	526	379	526	379
Investment in unquoted shares	281	268	282	269
	<u>807</u>	<u>647</u>	<u>808</u>	<u>648</u>
Investments in quoted shares	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Fair value at 1 January	379	405	379	405
Gain / (Loss) on fair value movement in the year	147	(26)	147	(26)
Fair value at 31 December	<u>526</u>	<u>379</u>	<u>526</u>	<u>379</u>
Investments in unquoted shares	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Value at acquisition date				
At 1 January	268	271	269	272
Additions	-	-	-	-
Revolving fund	13	(3)	13	(3)
At 31 December	<u>281</u>	<u>268</u>	<u>282</u>	<u>269</u>
Net book value	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
At 1 January	268	271	269	272
Movement in unquoted shares	13	(3)	13	(3)
At 31 December	<u>281</u>	<u>268</u>	<u>282</u>	<u>269</u>
Analysed as:	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Glanbia plc	485	335	485	335
Kerry Group plc	41	44	41	44
Moorepark Technology Limited	-	-	1	1
Wexford Milk Producers Limited	1	1	1	1
Lakeland Dairies	10	10	10	10
Aurivo	2	2	2	2
Tirlán Co-Op Ltd	13	14	13	14
Carbery Creameries Ltd	89	89	89	89
Barryroe Creameries Ltd	4	4	4	4
Dairygold Co-Op Society Ltd	69	69	69	69
Dairygold Co-Op Society (Revolving fund)	93	79	93	79
	<u>807</u>	<u>647</u>	<u>808</u>	<u>648</u>

NOTES TO THE FINANCIAL STATEMENTS

14. Investments (continued)

Details of investments:

Company name	Country of incorporation	Registered number	Number of shares	Nominal value per share at 31.12.2023	Dividend received	Nature of business of company
Glanbia plc	Ireland	129933	32,532	€14.91	2023 - €22,827 2022 - €4,129	Global nutrition company
Kerry Group plc	Ireland	111471	522	€78.66	2023 - €564 2022 - €512	Provider of taste and nutrition technologies
Moorepark Technology Ltd	Ireland	168270	5,102	€0.13	2023 - €nil 2022 - €nil	Provision of services for R&D
Wexford Milk Producers Ltd	Ireland	2640R	767	€1.00	2023 - €nil 2022 - €nil	Milk production and supply
Lakeland Dairies Co-Operative Society Ltd	Ireland	4622R	10,438	€1.00	2023 - €nil 2022 - €104	Milk production and supply
Aurivo Co-Operative Society Ltd	Ireland	5113R	1,715	€1.00	2023 - €34 2022 - €34	Milk production and supply
Tirlán Co-Operative Ltd	Ireland	4928R	12,506	€1.00	2023 - €1,639 2022 - €1,165	Milk production and supply
Kerry Co-Operative Ltd	Ireland	3618R	87	€1.25	2023 - €392 2022 - €348	Milk production and supply
Carbery Creameries Ltd	Ireland	2899R	19,605	€4.37	2023 - €nil 2022 - €nil	Milk production and supply
Carbery Creameries Ltd	Ireland	2899R	3,698	€1.00	2023 - €nil 2022 - €nil	Milk production and supply
Barryroe Co-Operative Ltd	Ireland	1736R	4,227	€1.00	2023 - €nil 2022 - €nil	Milk production and supply
Dairygold Co-Operative Society Ltd	Ireland	4621R	69,433	€1.00	2023 - €nil 2022 - €nil	Milk production and supply

Teagasc has invested €650 in share capital of Moorepark Technology Limited and has a 57% holding in the paid up share capital of the company.

The percentage shareholding in all of the other organisations listed is negligible and does not give Teagasc a controlling interest.

NOTES TO THE FINANCIAL STATEMENTS

15. Inventories

	2023	2022
	€'000	€'000
Livestock	5,406	6,059
Farm produce, fertilisers and feeding stocks	809	1,064
General supplies	256	300
	<u>6,471</u>	<u>7,423</u>

Stocks are stated after provision for impairment of €nil (2022: €nil).

Reconciliation of movements in livestock:

	2023	2022
	€'000	€'000
Balance at 1 January	6,059	5,827
Purchases	353	816
Sales	(4,088)	(3,883)
Births	1,413	1,213
Deaths	(149)	(169)
Fair value adjustments	1,818	2,255
Balance at 31 December	<u>5,406</u>	<u>6,059</u>

16. Assets held for sale

At 31 December 2023, Teagasc did not have any assets held for sale.

17. Receivables

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Trade receivables	10,868	9,935	10,332	8,932
Other receivables	221	200	143	140
Accrued operational income	12,790	14,487	12,790	14,487
Accrued Oireachtas grant income	6,617	6,104	6,617	6,104
Prepayments	2,147	2,775	2,122	2,752
VAT and other taxes	7	-	-	-
	<u>32,650</u>	<u>33,501</u>	<u>32,004</u>	<u>32,415</u>

All amounts included above fall due within one year.

Trade receivables are stated after provision for impairment of €185,532 (2022: €138,888).

18. Cash and cash equivalents

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Cash at bank and in hand	39,751	25,486	37,171	23,195
Short-term deposits	5,001	20,387	5,001	20,387
	<u>44,752</u>	<u>45,873</u>	<u>42,172</u>	<u>43,582</u>

NOTES TO THE FINANCIAL STATEMENTS

19. Payables – amounts falling due within one year

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Trade payables	937	431	836	450
Other payables and accruals	16,966	16,399	15,963	15,269
Legal provisions	431	262	431	262
PAYE/ PRSI	3,078	3,006	3,053	2,979
Value added tax	1,149	1,607	1,149	1,604
Withholding tax/ RCT	272	247	272	247
Other payroll deductions	1,074	954	1,074	953
	<u>23,907</u>	<u>22,906</u>	<u>22,778</u>	<u>21,764</u>
Payables for taxation and social welfare included above	<u>4,497</u>	<u>4,859</u>	<u>4,473</u>	<u>4,829</u>

Included in Teagasc's other payables and accruals of €15.963m are: repairs and maintenance costs €3.72m, wages, salaries and other payroll related costs €2.66m, (including an annual leave accrual of €1.48m), equipment and capital items €2.33m, general operating costs including utilities €1.60m, professional fees including legal and analytical services €1.59m, ICT costs €1.22m, other accruals €1.17m, farm running costs €0.92m, travel and subsistence €0.26m, grants/ seminars €0.25m and public relations and advertising €0.24m.

The payment of trade payables varies between on demand and thirty days. Prompt payment interest and compensation of €43,875 was payable on trade payables in 2023 (2022: €32,616).

PAYE/ PRSI, value added tax and withholding tax are subject to terms of relevant legislation. Interest accrues on late payment of taxes in line with the terms of relevant legislation. No interest was due at the end of the financial year for late payment of taxes.

Other amounts included within payables not covered by specific note disclosures are unsecured, interest free and repayable on demand.

20. Payables – amounts falling due after more than one year

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Other payables and accruals	406	406	-	-
	<u>406</u>	<u>406</u>	<u>-</u>	<u>-</u>

NOTES TO THE FINANCIAL STATEMENTS**21. Deferred income**

Teagasc carries out public funded research in collaboration with partner research performing organisations in accordance with contracts with other State Institutions, principally the Department of Agriculture, Food and the Marine. Grants in respect of such research are taken into account as income when the corresponding expenditure has been incurred under each contract. Teagasc makes payments to partners when advance grant income received by Teagasc is due to collaborating partner research organisations. Those advances are deferred until payments are made to the partner organisations. At 31 December 2023 the source and amount of deferred income in respect of research and other projects was as follows:

Grant/ other deferrals	Government Funding Department	Opening Deferred	Cash Received	Taken to income	Third party payments	Deferred within 1 year	Deferred > 1 year
		€'000	€'000	€'000	€'000	€'000	€'000
Agricultural Catchments Programme	Dept of Agriculture, Food and the Marine	64	2,788	2,852	-	-	-
Bord Iascaigh Mhara	Dept of Agriculture, Food and the Marine	-	44	-	-	-	44
Food research and agriculture research	Dept of Agriculture, Food and the Marine	6,152	5,316	3,970	-	4,612	2,886
Era Net	Dept of Agriculture, Food and the Marine	139	110	183	-	40	26
European Innovation Partnership	Dept of Agriculture, Food and the Marine		387	242	-	145	-
Marine Institute	Dept of Agriculture, Food and the Marine	30	-	-	-	30	-
National Carbon Observatory	Dept of Agriculture, Food and the Marine	680	-	530	-	150	-
National Prepared Consumer Foods Centre	Dept of Agriculture, Food and the Marine	1,029	100	652	-	477	-
AgNav	Dept of Agriculture, Food and the Marine	-	2,000	-	-	1,000	1,000
Agricultural and Equine Simulators	Dept of Agriculture, Food and the Marine	66	501	114	-	453	-
US Ireland	Dept of Agriculture, Food and the Marine	34	113	146	-	-	-
Sub total		8,193	11,359	8,689	-	6,907	3,956

NOTES TO THE FINANCIAL STATEMENTS

21. Deferred income (continued)

Grant/ other deferrals	Government Funding Department	Opening Deferred	Cash Received	Taken to income	Third party payments	Deferred within 1 year	Deferred > 1 year
		€'000	€'000	€'000	€'000	€'000	€'000
Sub total		8,193	11,359	8,689	-	6,907	3,956
Enterprise Ireland	Dept of Enterprise, Trade and Employment	2,522	3,541	3,814	258	1,668	323
Science Foundation Ireland	Dept of Enterprise, Trade and Employment	11,205	6,622	8,386	335	5,326	3,780
Environmental Protection Agency	Dept of Environment, Climate and Communications	241	275	215	89	114	98
Health & Safety Authority	Dept of Enterprise, Trade and Employment	21	-	-	-	21	-
Irish Aid	Dept of Foreign Affairs	617	1,210	129	985	290	423
Sustainable Energy Authority of Ireland	Dept of Environment, Climate and Communications	75	26	101	-	-	-
European Union		13,100	14,612	5,546	7,555	8,634	5,977
General research and other deferrals		3,851	289	607	117	3,038	378
Course and accommodation fees		2,216	1,386	1,494	-	1,647	461
Group total		<u>42,041</u>	<u>39,320</u>	<u>28,981</u>	<u>9,339</u>	<u>27,645</u>	<u>15,396</u>
Teagasc		<u>41,672</u>	<u>39,245</u>	<u>28,712</u>	<u>9,339</u>	<u>27,475</u>	<u>15,396</u>

NOTES TO THE FINANCIAL STATEMENTS

22. Provision for liabilities

Deferred tax	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
At 1 January	(17)	37	-	-
Charged to income and expenditure account	(22)	(54)	-	-
At 31 December	(39)	(17)	-	-

Components of deferred taxation	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Unutilised trading losses	(276)	(249)	-	-
Accelerated capital allowances	238	232	-	-
	(39)	(17)	-	-

23. Capital Account

The balance on this account of €138.707m (2022: €132.029m) represents the unamortised value of funds used to purchase property, plant and equipment, increasing by €6.675m in 2023 (2022: €8.076m).

24. Revenue reserves

The revenue reserves represent cumulative comprehensive income recognised as at the reporting date.

25. Non-controlling interest

The non-controlling interest comprises the other shareholders' equity investment together with their capital contribution to expand facilities in Moorepark Technology Limited.

26. Leases

Operating leases

At 31 December Teagasc had future minimum lease payments under non-cancellable operating leases as follows:

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Leases which expire:				
Within one year	762	654	762	654
Between two and five years	1,741	1,150	1,741	1,150
After five years	2,437	1,679	2,437	1,679
	4,940	3,483	4,940	3,483

NOTES TO THE FINANCIAL STATEMENTS

27. Reconciliation of surplus to cash flow from operating activities

	2023	2022
	€'000	€'000
(Deficit)/ Surplus for the year before taxation	(5,014)	804
Depreciation expense	11,317	10,063
Fair value adjustments on biological assets	(1,818)	(2,255)
Fair value adjustments on investments	(160)	29
(Gain)/ loss on disposal of tangible fixed assets	(31)	44
Interest paid	-	121
Interest income	-	(2)
Transfer to capital account	6,675	8,076
Total operating cash flows before movements in working capital	10,969	16,880
Decrease in inventory	2,772	1,608
Decrease in receivables	851	(7,628)
Increase in payables	2,007	1,696
Cash flow from operating activities	16,599	12,556

28. Private colleges

Teagasc provides support to three privately owned agricultural colleges, Gurteen Agricultural College, Mountbellew Agricultural College and Salesian Agricultural College Pallaskenry as follows:

	2023	2022
	€'000	€'000
Grants to private colleges	3,016	3,203
Salary costs of staff seconded to private colleges (included in the total pay expenditure in Note 7 above)	396	372
External service provider costs for teaching services provided to private colleges (included in the general operating expenditure in Note 8 above)	179	159
	3,591	3,734

In addition to grants outlined above Teagasc provided workbooks to private colleges to the value of €59,400 (2022: €61,000). Income of €465,400 (2022: €547,775) was received from private colleges for course resources provided by Teagasc and the agreed share of Rural Development Programme course learner fees. Income from Technology Universities of €180,213 (2022: €166,718) was received by the Teagasc towards modules delivered in the Private Colleges.

29. Commitments

Capital commitments

Teagasc had capital commitments outstanding at 31 December 2023 amounting to €10.383m which relate to construction of buildings and facilities at Johnstown Castle €8.888m, Clonakilty College €0.705m, Grange €0.396m, and Dungarvan €0.394m (2022: €4.344m).

Grant commitments

Teagasc had grant commitments outstanding at 31 December 2023 amounting to €11.159m which relate to Walsh scholars €7.223m, private colleges €3.067m and other grants €0.870m (2022: €9.860m).

NOTES TO THE FINANCIAL STATEMENTS

30. Authority members – disclosure of transactions

The Authority has adopted procedures in accordance with the guidelines issued in 2016 by the Department of Public Expenditure and Reform in relation to the disclosure of interest by Authority members and the Authority has adhered to these procedures. There were no transactions in the year in relation to the Authority's activities in which the Authority members were involved.

31. Contingent liabilities

The Authority has made provision in the financial statements reflecting its best estimate of the liability arising. The Authority is of the view that there are no contingent liabilities.

32. Related party transactions

The following transactions were carried out with related parties:

Sales of goods and services:

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Subsidiary	-	-	10	6
Grassland Agro	116	116	116	116
	<u>116</u>	<u>116</u>	<u>126</u>	<u>122</u>

Purchases of goods and services:

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Subsidiary	-	-	1,011	906
	<u>-</u>	<u>-</u>	<u>1,011</u>	<u>906</u>

Payable to related parties:

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Subsidiary	79	117	79	117
	<u>79</u>	<u>117</u>	<u>79</u>	<u>117</u>

The receivables and payables arise from sales and purchase transactions, respectively. The receivables and payables are unsecured in nature and bear no interest. No provisions are held against receivables from related parties during the year (2022: €nil).

Under the terms of the Moorepark Technology Limited Shareholders' Agreement, Teagasc has undertaken to:

- (i) discharge from its own resources, all costs associated with the company's engagement and/or employment of a senior manager, one technician and the Company Secretary; and
- (ii) indefinitely underwrite utility, stores, accounts and effluent overheads.

Teagasc's provision of staff to MTL cost €324k in 2023 (2022: €306k) and is included in payroll. Teagasc made a capital investment of €444k in the Moorepark waste water treatment facility in 2023 with further investment planned for 2024. The cost of Teagasc's provision of effluent and security services to MTL in 2023 is €130k (2022 - €97k) and is included in general operating expenses and depreciation.

Teagasc carried out research on behalf of Grassland Agro in 2023. Mr. Liam Woulfe, Authority member, has an interest in Grassland Agro.

NOTES TO THE FINANCIAL STATEMENTS

33. Financial instruments

The Group and Teagasc have the following financial instruments:

	Group		Teagasc	
	2023	2022	2023	2022
	€'000	€'000	€'000	€'000
Financial assets that are equity instruments measured at fair value through consolidated statement of income and expenditure				
Listed non-current asset investments	526	379	526	379
Unlisted non-current asset investments	281	268	282	269
Financial assets				
Trade receivables	10,868	9,935	10,332	8,932
Other receivables	221	200	143	140
Cash in hand (including short-term deposits)	44,752	45,873	42,172	43,582
Financial liabilities measured at amortised cost				
Trade payables	937	431	836	450
Other payables	16,894	16,399	15,891	15,269

34. Events after the reporting period

There have been no significant events, outside the ordinary course of business, affecting the Group since 31 December 2023.

35. Approval of the financial statements

The Authority approved the financial statements on 06 March 2024.

