

Celebrating 25 years of Postgraduate Agri-food Research 1993 – 2018





Walsh Fellows Teagasc RDS Gold Medal Winners Roll of Honour

1996 Andrew Fisher
1997 John Maher
1998 Marianne O'Shea
1999 Rogier Schulte
2000 Noelle Brennan
2001 Carol Newman
2002 Donagh Berry
2003 Laurence Shalloo
2004 Sasha A. Hugentoble
2005 Sean Fair
2006 Kaushal Kothari
2007 Lisa Costello
2008 Galatios Moschonas
2009 Brid Coffey
2010 Michelle Whelan
2011 Sean Cummins
2012 Noeleen McDonald
2013 Patrick Gillespie
2014 Mary Harty
2015 Leanne Roche
2016 Aideen Kennedy
2017 Sinead Morrin

Teagasc Denis Minogue Memorial Award Medal Winner

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Acknowledgement

Teagasc would like to gratefully acknowledge and thank a number of Irish agencies for their significant funding contributions towards the Walsh Fellowships Programme over many years.



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An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine

We would particularly like to thank the Department of Agriculture, Food and the Marine (DAFM) for the funding received through their FIRM, STIMULUS and COFORD programmes; 17% of our current Walsh Fellowships are fully or part funded by DAFM. We would also like to thank Science Foundation Ireland, Enterprise Ireland, the Environmental Protection Agency, and the Health and Safety Authority for their funding contributions towards the Programme. Teagasc also acknowledges the funding received from the EU Horizon 2020 programme and previous framework programmes.

For more information on the Walsh Fellowships Programme, please contact:



Hilary King Walsh Fellowships Administrator, E: walsh.fellowships@teagasc.ie T: 059-918 3478



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www.teagasc.ie



Foreword



Prof. Frank O'Mara

Director of Research,

The Walsh Fellowships Programme is one of Teagasc's most important programmes. We currently have over 240 Walsh Fellows in the Research Directorate conducting research for mainly PhD degrees, and a further 40 Walsh Fellows in the Knowledge Transfer Directorate involved in the MAgrSc agricultural extension and innovation programmes. There are three reasons why this Programme is so important to us. Firstly, the Walsh Fellows conduct a huge amount of research, and this allows us to deliver a very large research programme, much bigger than it would be in their absence. Very often, our most important and ground-breaking research is conducted by Walsh Fellows and their supervisors. Secondly, the Programme allows us to develop collaborations with top scientists in all the Irish universities and most of the institutes of technology, and very importantly, we have collaborations with 22 international universities in 12 countries, allowing us to access the best of global expertise in our fields of research. Thirdly, and perhaps most important, the Walsh Fellowships Programme makes a huge contribution to developing the human capital needed by the Irish agri-food sector. Our Walsh Fellows end up in leading roles in agri-food companies, academia and research, the public sector, and representative organisations, as well as in similar roles internationally. This human capital is a very important building block for our industry.

Each year, we have held a seminar where Walsh Fellows nearing completion of their work present their findings, and we have presented a medal to the winner with kind assistance from the Royal Dublin Society (RDS). Winners over the last 25 years are profiled in this publication, and their achievements in their careers to date are inspiring. They are all complimentary of the impact their Walsh Fellowship had on their personal and professional development, and I think these testimonials alone justify the investment made in the Programme over the years. I urge you to read the profiles and, once you start, you won't stop. One thing I am very pleased about is the gender balance, with 12 female winners and 13 males – proof if it were needed that talent is equally distributed.

I would like to acknowledge the contribution that Irish funding agencies - mainly the Department of Agriculture, Food and the Marine (DAFM), Science Foundation Ireland, the Irish Research Council, and the Environmental Protection Agency – have made in this area. Their funding has allowed us to greatly expand the number of Walsh Fellows that we could fund from grant-in-aid alone, and I think it is a very wise investment. Finally, reading these profiles makes me somewhat nostalgic for my own days as a PhD student, registered in UCD and based in Moorepark. We were not called Walsh Fellows at the time, and there were not many of us, but it was a fantastic experience for me, and hugely instrumental in my development as a scientist. It is a period when you have time to delve deep into a topic, when people are only too willing to help, when you can broaden your horizons by learning what other students and researchers are doing, and when you have time to think, experiment, make mistakes and develop the conceptual framework you will use to analyse issues later in your career. In short, it is a great experience and one that I and the Walsh Fellows profiled here wholeheartedly recommend.

Welcome





Dr Lance O'Brien

Manager of Strategy and Walsh Fellowships Programme, Teagasc

I am delighted to welcome you to this special publication to celebrate the 25th anniversary of the Teagasc Walsh Fellowships Programme and to introduce to you some of the top graduates from the Programme over the years.

Since the late 1990s, the provision of doctoral education in Ireland has evolved rapidly accompanying significant new investment in research. In line with the US and elsewhere in Europe, graduate schools have been established involving a much stronger taught element, and panel-based monitoring is now standard at review and progression points. We are also seeing a growing range of academic and professional routes to achieving doctoral degrees. Programmes seek to equip doctoral graduates with the transferable skills required to progress their careers across a wide range of employment sectors and to be capable of contributing significantly to any field.

Innovation 2020 (2015), Ireland's strategy for science, technology, research and development, views postgraduate education as critical to the vision of Ireland as a global innovation leader. Ireland's National Strategy for Higher Education to 2030 (2011) aims to create a coherent and well-coordinated system of higher education that enhances our international reputation and capacity for doctoral education. The National Framework for Doctoral Education (2015) provides a set of principles consistent with European guidelines and standards, including the Salzburg Principles and Bologna Convention.

One of the most dramatic changes impacting Walsh Fellows and other doctoral students today compared to 25 years ago is the

change in career opportunities. Traditionally, the doctorate was viewed as the entrance qualification for an academic career. Today, however, doctoral graduates are employed across all sectors. As a result, while the core component of training remains the development of research skills and the advancement of knowledge through original research, the National Framework for Doctoral Education also promotes a range of other educational objectives, including: ethics and social understanding; communication skills; personal effectiveness/development; teamworking and leadership; career management; and, entrepreneurship and innovation.

The nature of the research experience in Teagasc has also changed considerably. Principal investigators have become more established elements of research strategy. In addition, the nature of research across much of agri-food and life sciences has changed. Traditional agriculture, biological, food and engineering disciplines are melding together and new specialties are developing. The traditional image of a Walsh Fellow, chosen from the elite of Irish graduates, undertaking specialised research within a narrow technical topic, has been overtaken by a changing external environment in which there is far more competition for the best graduates and far greater attention to a broader training and a changing internal Teagasc environment, in which the role and organisation of the Fellows' research is also changing. While many changes have occurred since the Walsh Fellowships Programme commenced in 1993, the fundamental principles underlying our Programme have not changed. Working on targeted applied research questions of relevance to the sector within teams with a high focus on disseminating results to relevant stakeholders, our students develop specific analytical skills, as well as more generic teamwork and communication skills. These skills are highly transferable, making our alumni of value in many different roles across the Irish economy and internationally. In addition to the alumni working in industry and the public sector, many also work in the university sector and now act as co-supervisors to our PhD students, continuing the collaborations started when they themselves were students.

About the Walsh Fellowships Programme



What is the Walsh Fellowships Programme?

The Teagasc Walsh Fellowships Programme is a postgraduate programme whereby Teagasc offers up to 50 fellowships each year, mainly at PhD level, to graduates to undertake postgraduate research in agriculture, food, environmental science, agri-food economics, rural development, horticulture, and other related disciplines. Through the university or higher education institution (HEI), each student receives a grant of &22,000 each year for a maximum of four years. This grant includes a contribution to HEI fees up to a maximum of &6,000 per year.

What is the duration of the Programme?

The duration of an MSc is two years, an MAgrSc is up to two years, and a PhD is a maximum of four years.

Where are postgraduates located?

Walsh Fellows are predominantly located at one of Teagasc's six research centres: Teagasc, Research Centre, Ashtown, Dublin 15; Teagasc, Athenry, Co. Galway; Teagasc, Grange, Dunsany, Co. Meath; Teagasc, Moorepark, Fermoy, Co. Cork; Teagasc, Oak Park, Carlow; and, Teagasc, Johnstown Castle, Co. Wexford.

All Teagasc research centres have a team of highly skilled research, technical and support staff working in well-equipped modern laboratories and field-based facilities. Some Walsh Fellows may spend part of their fellowship at a university, HEI or research institute abroad. Walsh Fellows pursuing an MAgrSc with UCD (see page 7) will be located in a Teagasc advisory office or agricultural college. Students based at a Teagasc research centre, advisory office or college will be facilitated to attend the academic modules required for their degree programme.

How do I apply for a Walsh Fellowship?

I am a prospective student...

If you are a postgraduate student interested in competing for a Walsh Fellowship, all the available postgraduate opportunities are posted on the Teagasc website – www.teagasc.ie.

Alternatively, you can contact an academic at your university or institution to seek more information on available opportunities. If you are interested in a specific research topic, it may be possible to discuss it with a Teagasc researcher or academic at your university or institution. The contact details for supervisors are posted on the website with the postgraduate opportunities.

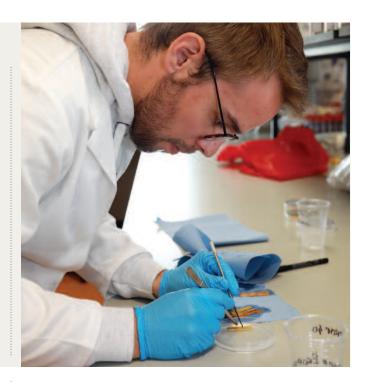
Applications to the annual call for Walsh Fellowship projects are not accepted from individual postgraduate students.

I am an academic...

Teagasc publishes an annual call for Walsh Fellowship projects. The call opens in early June and closes in early September each year, and all applications must be submitted online. The research topic for the Walsh Fellowship must be related to the Teagasc research programme. Topics on all aspects of agriculture, horticulture, food, agri-food economics, rural development, and environment will be considered. All applications will be subject to a two-stage evaluation process. Applications for Fellowships must be made by full-time academic staff in third-level colleges in collaboration with a Teagasc research officer. The successful applicants select the Walsh Fellows. Please see www.teagasc.ie for more information on the application process, or email Hilary King, Walsh Fellowships Administrator, at walsh.fellowships@teagasc.ie.

Teagasc-Fulbright Irish Student Award

The Fulbright Commission's annual awards programme enables students and scholars to undertake study, research or lecturing at a recognised college or institution in the United States. The Fulbright Programme has been widely recognised, since its inception in 1957, as the premier USA/world scientific and educational exchange programme. Since 2003, Teagasc and the Irish Fulbright Foundation have provided an annual award of two joint Fulbright-Teagasc scholarships for postgraduate study/research in the United States. The Fulbright Commission and Teagasc offer this award to Irish postgraduate students to travel to the US to study or research in the fields of agriculture, food, forestry and environment. The Fulbright Irish Student Awards are grants for Irish citizens, or EU citizens resident in the Republic of Ireland for three or more years, to complete postgraduate research in the US for a period from four months up to one year. For further details, please see: http://www.fulbright.ie/.



Postgraduate training and development

Teagasc provides postgraduate students with access to training and development opportunities that will equip them with the necessary skills for the next stage of their career. Through their universities, participating students are required to achieve a level of statistical expertise in experimental methods appropriate to a master's or PhD programme. In addition, throughout their Fellowship, postgraduate students are expected to acquire competence in the following areas: reviewing and analysing literature; scientific writing skills; presentation skills; and, specific technical skills related to their area of research.

International training awards

Walsh Fellowship students have an opportunity to apply for an international training award. This award enables Fellows to spend up to three months in an approved university or research institute outside Ireland. The purpose of the award is to strengthen Fellows' research training, assist them in achieving their career objectives, and developing Teagasc's scientific capabilities. Teagasc aims to ensure that its Walsh Fellows receive the best possible research training through developing linkages with the best universities and research institutes internationally.



Master's programmes

Teagasc, in association with UCD, offers two master's degree programmes funded by the Teagasc Walsh Fellowships Programme. The knowledge, skills and

experience gained on these programmes will equip participants for future careers in advisory services, technical consultancy and education delivery.

MAgrSc Agricultural Extension and Innovation (two years full-time)

This unique programme aims to equip participants with the skills and knowledge to be effective in building the capacity of farmers to adopt new practices and technologies. The programme contains a blend of taught modules and independent research (25:75, respectively), and includes a 15-month placement in a Teagasc office or education centre. Students are assigned a topic on which to base their research, and each candidate is supported by a Teagascand UCD-based thesis supervisor.

MAgrSc Agricultural Innovation Support (22 months full-time)

This is a two-year taught master's programme with students on professional placement for the full duration and completing modules for 90 credits (ECTS). Programme modules are designed to support traineeship learning, with assignments and projects focused on students' professional placement and real-life challenges.

How do I apply?

Applications to the Master's programmes open in early April. Application forms can be downloaded from www.teagasc.ie or www.ucd.ie/agfood, or by emailing agribus.ruraldev@ucd.ie.

Applicants must hold a second-class honours degree in agricultural science or an equivalent discipline.

Please see www.ucd.ie/agfood for more information on the entry requirements or contact:

Dr Tom Kelly, Teagasc – tom.kelly@teagasc.ie; or, Dr Monica Gorman, UCD – monica.gorman@ucd.ie.

History of the Walsh Fellowships

The Teagasc Walsh Fellowships have evolved from decades of investment in postgraduate research in Ireland.



Beginnings

An Foras Talúntais (AFT, now Teagasc) was founded in 1958, and in the following year its Director, the late Dr Tom Walsh, instituted scholarship and university research grant schemes for postgraduates. In the first few decades, up to ten grants and scholarships were awarded annually. With improved funding in the 1990s, particularly from EU structural funds, the Teagasc Authority, led by Prof. Pat Fottrell, took the far-sighted decision to invest substantially in fellowships. As a result, the fellowships scheme was restructured and formally re-launched in 1993 as 'The Walsh Fellowships Programe', in honour of Dr Walsh. For many years, Teagasc, through the Walsh Fellowships Programme, was the main funder of postgraduates in Ireland, and over the years the organisation has supported large numbers of high-quality students in Irish and foreign universities.

A changing landscape

In recent years, the Irish research landscape has changed radically, with bodies such as the Irish Research Council for Humanities and Social Sciences (IRCHSS) and the Irish Research

Council for Science, Engineering and Technology (IRCSET) providing an important source of funds for postgraduate study. The IRCHSS and IRCSET merged to form the Irish Research Council in 2012, and Science Foundation Ireland (SFI) was founded in 2000 to support ICT and biotechnology research. Within Teagasc, new research structures evolved, as postdoctoral fellowships and principal investigators became more established elements of research strategy. In addition, the nature of research across much of the agri-food and life sciences has changed. Traditional agricultural, biological, food and engineering disciplines are melding together and new specialties are developing. There has been a notable trend towards larger research teams, with implications for postgraduate management and training. Despite all of this change, the Walsh Fellowships Programme has proven to be remarkably effective in meeting the training needs of young postgraduates and directing them into high-grade employment. Through ongoing adaptation to the changing scientific and industrial environment, Teagasc will ensure that the Programme continues to address new challenges and opportunities as they arise.



Profile of Dr Tom Walsh

The Walsh Fellowships commemorate the late Dr Tom Walsh (1914-1988), a national leader in agricultural and food research in Ireland and a globally recognised soil scientist. He was the first director of

both An Foras Talúntais (AFT) and the National Advisory and Training Service (ACOT), which were merged to form Teagasc in 1988. Dr Walsh, a native of Piercetown, Co. Wexford, graduated from University College Dublin in 1937 with an honours BAgrSc degree. He received the MAgrSc the following year, his PhD in 1941 and was awarded the DSc in 1947. He received honorary

doctorates from the National University of Ireland (LLD) in 1972 and Trinity College Dublin (ScD) in 1980. On graduation, Dr Walsh worked with Imperial Chemical Industries Ltd, and later as an agricultural instructor in north Tipperary. He joined the staff of University College Dublin in 1938, and lectured in soil science until 1945, when he became Soil Advisory Officer in the

In 1952, he was appointed Senior Inspector in that Department, with responsibility for soils and grassland research. When AFT was established in 1958, the Government appointed him as its first director. He became the first director of ACOT in 1980 and retired from the public service in 1983.



Annual Teagasc RDS Gold Medal

Since the launch of the Walsh Fellowships
Programme, Teagasc has organised an
annual Walsh Fellowships seminar
supported by the Royal Dublin Society (RDS).
At the annual seminar, Walsh Fellows in
their final year are invited to present the
results of their research to an invited
audience. The RDS presents a gold medal
each year to the winning student, reflecting
the long RDS tradition of support for
agriculture, agricultural science, and
broader fields of science and technology.
Teagasc would like to thank the RDS for its
commitment to the Walsh Fellowships
Programme over the years.

To celebrate the 25th anniversary of the Programme, we asked the Gold Medal winners from 1996 to 2017 to reflect on their experience as a Walsh Fellow and how it has impacted on their career, and to share their advice with future Walsh Fellows. We hope you enjoy reading their inspiring stories.



1996

Prof. Andrew Fisher

Currently
Chair of Cattle and Sheep Production
Medicine, Director of the Animal Welfare
Science Centre, The University of

Walsh Fellowship funded by Teagaso

What research did you do as a Walsh Fellow?

My research examined the welfare and health of beef cattle in response to winter housing and surgical husbandry procedures. We identified optimal space allowances for group-housed cattle in the winter, and identified how local anaesthesia can enhance the welfare of male calves that need to be castrated.

How would you describe your experience as a Walsh Fellow?

It was a great environment to learn and do research – working with the facilities and backing of Teagasc, while also accessing the expertise available at both the collaborating university and Teagasc. I also felt I was part of a cohort of other committed research students, and there was definitely an incentive to do your best, learn from others and progress your scientific enquiries.

What effect did it have on your career?

Undertaking a Walsh Fellowship was the launching pad for my career in research. I had been a clinically practising vet



beforehand, and the research environment and access to additional training from my Fellowship equipped me to take the next steps in what has been a varied and stimulating career since then. Overall I have worked in four countries, engaged in active collaborations with colleagues across the world, and have hopefully been able, with others, to advance the management and well-being of our farm livestock.

What advice would you give to potential Walsh Fellows?

Make the most of your opportunities. The Walsh Fellowship provides a strongly supported platform to learn about the research process, advance your specific knowledge in your field, and build networks. As they say in Australian rules football – don't leave anything in the changing shed!



John Maher

What research did you do as a Walsh Fellow?

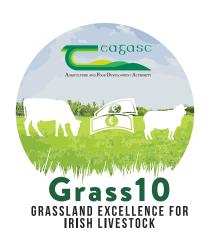
My research investigated the relationship between the level of pasture offered and the performance of spring-calving dairy cows. High performance from grazing dairy cows has a major influence on the profitability of milk production in Ireland. This is achieved by high intakes of high-quality pasture.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship provided me with the best period of education during my career. While the learning curve was steep, it set me on a pathway to a career in Teagasc particularly focused on grazing management. However, one of the hidden benefits of this Programme was the training provided by mentors in the area of communication. I learned new and invaluable communication skills, which have remained with me to this day.

What effect did it have on your career?

I am currently manager of the Grass10 campaign. Grass10 is a



four-year campaign recently launched by Teagasc to promote sustainable grassland excellence. This campaign will play an important part in increasing grass growth and utilisation on Irish grassland farms, thereby improving profitability at producer level and helping to ensure the long-term sustainability of Irish dairy, beef and sheep production.

My research career focused on grazing and this provided huge knowledge for this campaign.

What advice would you give potential Walsh Fellows?

Being part of the Fellowship is without doubt a wonderful learning experience. While research will provide new learning, other new skills will be learned too, which will prove invaluable to your career.



Dr Marianne O'Shea

What research did you do as a Walsh Fellow?

My PhD investigated the biological effects of conjugated linoleic acid (CLA), which are a group of lipids present in cow's milk. The work from our lab demonstrated that CLA is cytotoxic to human cancer cells and that cellular antioxidant mechanisms are partially responsible for this effect in cell culture models.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship enabled a multidisciplinary approach to my studies, due to a strong collaboration between two diverse labs led by Dr Rosaleen Devery at DCU and Dr Catherine Stanton at Teagasc, Moorepark. The principal goal of the research was to demonstrate the biological activity and mechanism of CLA, leveraging the strengths of the DCU lab. Teagasc guided the commercial application of the project, with the development and validation of analytical methods and process development to enrich naturally occurring CLA in milk.

What effect did it have on your career?

10 The Fellowship provided me with the fundamental technical skills



needed for a career in industry, and positioned me for international experience. I started my career in the Netherlands before transferring to the US, and currently have a truly global role guiding the nutrient contribution of a product portfolio in over 200 countries. The potential to improve public health by guiding the reduction of added sugars, saturated fats and sodium, in addition to increasing positive food groups and nutrients such as wholegrains, fruits and vegetables and fibre, has made my career incredibly rewarding.

What advice would you give to potential Walsh Fellows?

The Walsh Fellowship was a great foundation, which enabled me to take my career far beyond what I envisioned during my PhD. Focus on a solid foundation and you will be positioned to pursue many directions in academia, NGOs and industry all across the world.



Prof. Rogier Schulte

Currently Chair Professor, Farming Systems Ecology Wageningen University and Research, The Netherlands

Walsh Fellowship funded by Teagasc

What research did you do as a Walsh Fellow?

I studied the stability of grass-clover swards on the experimental organic farm that Teagasc operated at Johnstown Castle. Grass-clover mixtures can save on nitrogen fertiliser inputs, but can be unreliable in terms of annual yield.

My Walsh Fellowship focused on understanding and managing this instability, to make the use of clover a more attractive proposition.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship got me out of the ivory tower of academic research and taught me to practise science in the real world. I learned quickly that managing farms and managing the environment is at least as complex as coding scientific models. I learnt to see the world through the eyes of many different actors within the industry, from farmers to policy makers. As I was one of the first Walsh Fellows, I was thrown in the deep end and had to more or less chart my own path. But I was lucky to get support and advice from many kind researchers who were happy to share decades of knowledge with me.



What effect did it have on your career?

The real-world research that I conducted during my Walsh Fellowship prepared me for a 20-year career in Teagasc, where I learnt to understand how the agricultural industry, environment and policies work.

In 2016 I moved to Wageningen University to take up my current position as Chair of the group where I once studied as a student.

The exciting prospect for this new position is that it allows me to combine my academic training and interest in pushing out the boundaries of sustainability with 20 years of real-life experience in Teagasc at the heart of the industry.

What advice would you give potential Walsh Fellows?

A Walsh Fellowship offers you a unique opportunity to combine the academic and applied insights from your university and Teagasc supervisors. Taking the advice from both sides can at times be challenging (because it may be contradictory!) but also provides a chance to produce a thesis that is both innovative and meaningful.



Prof. Carol Newman

Currently
Professor in Economics, Head of
Department of Economics, Trinity College
Dublin

Walsh Fellowship funded by Teagasc



What research did you do as a Walsh Fellow?

My research focused on understanding consumer preferences for different types of food and food services in Ireland.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship provided me with the opportunity to work on research that was of direct relevance to Teagasc and the Irish economy. I had access to significant expertise within the organisation, and supports for the development of my presentation and writing skills, conference travel, and doctoral training. These supports were crucial in developing my skills as a researcher and taught me valuable lessons for my future research career.

What effect did it have on your career?

The Walsh Fellowship provided me with a solid foundation in

research skills and methods. Today, my research is in the field of development economics and in particular focuses on understanding the micro-foundations of economic development. While the context is different to the topic of my PhD research, the fundamentals are the same. The Fellowship provided me with the necessary tools at an early stage in my career to fully engage in policy-relevant applied research at the frontier of academic knowledge.

What advice would you give to potential Walsh Fellows?

Use this important opportunity in your life to fully engage with research. Ask questions, work hard and, most importantly, take every opportunity to interact with other researchers and experts in your field.



Prof. Donagh Berry

Currently
Principal Research Officer in Genetics
Director of VistaMilk Centre, Teagasc
Moorepark, Fermoy, Co. Cork

Walsh Fellowship funded by Teagaso



What research did you do as a Walsh Fellow?

My research involved quantifying the exploitable genetic variability in reproductive performance in Irish dairy cows and the optimal strategies to achieve rapid genetic gain in a national breeding programme. Results clearly showed that breeding is the most sensible long-term strategy to solve reproductive failure and, by extension, most performance traits.

How would you describe your experience as a Walsh Fellow?

It was very enjoyable and rewarding. I had great supervisory support exposing me to things and stakeholders outside my direct remit, but also focusing my mind on the requirement for research to make a difference and not just research for the sake of it. I made great friendships in many countries, which have since led to many internationally funded projects.

What effect did it have on your career?

Most importantly, it taught me how to learn and in doing so, break big problems into their sub-components, solve them, and build right back up again. Moreover, my supervisors taught me how to look at things very differently to most and to challenge the current dogma.

What advice would you give to potential Walsh Fellows?

Do some training abroad and acquire a skillset that is not available in Ireland – in doing so, you set yourself apart from others. Attend as many useful courses as possible. Do not try and rush to the finish line – PhDs are a time for learning.



Dr Laurence Shalloo

Currently
Principal Research Scientist, Teagasc
Moorepark, Fermoy, Co. Cork

Walsh Fellowship funded by the Dairy Research Trust



What research did you do as a Walsh Fellow?

I developed a model (Moorepark Dairy Systems Model) to analyse institutional, policy and technical change in dairy farming. This model is now used across the dairy industry, from the development of the economic values for the Economic Breeding Index (EBI) to the development of the economic-based grass selection index, with the core engine of the model used to calculate greenhouse gas emissions.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship provided me with the experience and skills to start my career as a research scientist within Teagasc. In reality, when joining Teagasc as a student I had no research or modelling skills, and essentially the Walsh Fellowship allowed me to develop those skills. It also taught me the importance of continuous learning within the career environment. During this period I greatly advanced my communication skills.

What effect did it have on your career?

The Walsh Fellowship has allowed me to start and build a career in the dairy industry in Ireland. It has taught me skills that are needed to be a good researcher providing solutions to the end users across the industry. The completion of the Walsh Fellowship also allowed me to develop a direction within my career.

What advice would you give to potential Walsh Fellows?

Focus on the skills that you are developing rather than the absolute results from the research. While the research results are important, the skills developed will have a longer lasting effect on your career. A key focus is on understanding the key stakeholders within the industry and what their requirements are.



Dr Sasha Hugentobler

Currently
National Contact Point (NCP) for Switzerland
in the EU Horizon 2020 health programme,
NCP for Switzerland for the Joint Research
Centres of the European Commission,
Euresearch, Berne, Switzerland

Walsh Fellowship funded by DAFM

What research did you do as a Walsh Fellow?

I researched early embryo mortality in dairy cows. I was especially interested in the biochemical composition of the bovine and human oviduct and uterus fluids in which the early embryo develops, and how hormone levels influence these fluids. The results led to further research to develop an optimal medium for human embryos for in vitro fertilisation (IVF).

How would you describe your experience as a Walsh Fellow?

It was very exciting! The successes and published papers were a nice reward for the sometimes tedious measurements in the laboratory. Experiments that fail teach you endurance. The work in both teams, the university team and the Teagasc team, provided different skills and know-how, and was a very fruitful experience from which I still benefit in my current job, advising scientists from academia, industry and research organisations. It was an excellent environment in which to work.

What effect did it have on your career?

I received strong recognition in the scientific community, but



decided against the postdoctoral job offers and instead worked as a Teagasc research officer. The experience I gained in different academic labs and at Teagasc during my PhD made me aware of the applied research that I was more interested in. By becoming an NCP for an EU research and innovation funding programme, I could apply my skills to support scientists from different fields in preparing research proposals.

What advice would you give to potential Walsh Fellows?

It is hard work, but also fun and the Programme opens so many opportunities. It gives you the chance to learn so much more beyond the opportunity to carry out excellent research and meet a great network of brilliant scientists.



Dr Seán Fair

Currently
Senior Lecturer in Animal Physiology and
Principal Investigator of the Laboratory o
Animal Reproduction, University of
Limerick

Walsh Fellowship funded by DAFM

What research did you do as a Walsh Fellow?

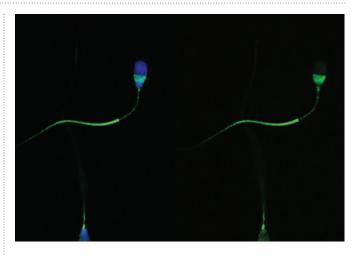
My research was on cervical artificial insemination for sheep using frozen-thawed semen. Specifically, it focused on characterising why some ewe breeds have better pregnancy rates than others. This led me on a path of studying the interaction of sperm with the female reproductive system, as well as factors influencing fertilisation failure and early embryo loss.

How would you describe your experience as a Walsh Fellow?

I thoroughly enjoyed my project and the opportunity to work alongside internationally recognised researchers in Teagasc and University College Dublin. Outside of the science and the research process skills, I got excellent experience in the area of project and people management, as well as understanding the wider challenges faced by the agricultural industry. I developed many new relationships with people working with other species and in other areas of agriculture, which have stood to me to this day.

What effect did it have on your career?

The Walsh Fellowships Programme is held in extremely high



regard internationally. Completing a Walsh Fellowship and the skills obtained during it put me on a platform to secure my first academic position at the National University of Ireland Galway. Also, the Walsh Fellowship didn't stop the day I graduated with a PhD, as I continued to work on related research projects with the researchers who supervised my PhD.

What advice would you give to potential Walsh Fellows?

Focus on what you are interested in and talk to academics/researchers in these areas in the early years of your undergraduate degree. There may be opportunities to help out on research projects so as to build your CV. Make the most of your PhD and don't be afraid to spread your wings and spend some time abroad.



Kaushal Kothari

Currently
Technical Manager, CP Ingredients Ltd,
Limerick

Walsh Fellowship funded by DAFM



What research did you do as a Walsh Fellow?

I studied the effects of novel processing technologies (high-pressure processing and high-pressure homogenisation) on the textural attributes of low-fat yoghurt and cheese products.

How would you describe your experience as a Walsh Fellow?

I was always interested in doing a PhD in dairy science. Getting a Walsh Fellowship allowed me to make the decision to leave a job in the dairy industry and go back to university. Having my base in the Teagasc Moorepark Food Research Centre was a very rewarding experience, with access to experts/scientists as well as excellent pilot plant facilities. The hands-on experience I gained at Moorepark gave me a lot of confidence, which was very helpful in my next job.

What effect did it have on your career?

The time spent at Moorepark gave me new insight into different aspects of dairy processing and correlating fundamental science with commercial manufacturing. It helped me a lot in developing new ingredients and being able to do troubleshooting and problem solving while working in the industry.

What advice would you give to potential Walsh Fellows?

Getting a Walsh Fellowship and working at a Teagasc research centre is an opportunity you should never miss. It will help to build a strong professional career, and the contacts developed with researchers during the Programme will be life long.



Dr Lisa Costello

Currently
Senior Technical Scientist, Abbott Ireland

Walsh Fellowship funded by DAFM

What research did you do as a Walsh Fellow?

In the dairy cow, low systemic concentrations of progesterone are known to be a major factor associated with early embryo loss. My research examined the effect of the oestrous cycle stage, and the concentration of systemic progesterone on protein expression in the bovine uterus.

How would you describe your experience as a Walsh Fellow?

As with all research, development and completion of experiments takes time. Initially, studies do not always progress as hoped. However, my Teagasc supervisor provided great support and knowledge throughout the Walsh Fellowship. The research facilities provided to Walsh Fellows were state of the art, and the working environment was really conducive to completion of my studies. The other Walsh Fellows, supervisors and staff were a wonderful team to be surrounded by, and overall it was a great experience.

What effect did it have on your career?

The scientific techniques and skills that I gained through the Walsh Fellowships Programme have been of immense value to my career



in the diagnostic healthcare industry. The scientific methods employed during my research gave me an understanding of the technical aspects of the industry. It also provided me with the analytical skills required for my role in technical support. Additionally, the Walsh Fellowship provided opportunities in public speaking at conferences, as well as presentation and publication of data, all of which has been very useful in my career.

What advice would you give to potential Walsh Fellows?

The Walsh Fellowships Programme will provide you with outstanding support throughout your research including compensation, excellent mentorship and state-of-the-art facilities. There will be numerous opportunities available to you upon graduation from the Programme and the lessons learned from your time as a Walsh Fellow will stand to you in years to come.



Dr Galatios Moschonas

Currently
Scientific Associate, Athens Analysis
Laboratories S.A., Athens, Greece

Walsh Fellowship funded by DAFM (FIRM)

What research did you do as a Walsh Fellow?

I worked on controlling blown pack spoilage (BPS), a particular type of spoilage affecting chilled-stored, vacuum-packaged meats and causing significant losses for the industry in Ireland and worldwide. BPS produces severely distended ('blown') packs, offodours and meat discolouration. I worked on delaying the onset of BPS using alternative treatments during meat production, which were adopted by the major Irish meat producers.

How would you describe your experience as a Walsh Fellow?

Teagasc and the Walsh Fellowships Programme offered me a fantastic opportunity to work in distinguished laboratories, collaborate with exceptional scientists and work in a multicultural academic environment. I had everything a young researcher needs for a good start to his or her career, i.e., a good income, access to plenty of resources, and the calmness to focus on my studies. You just add hard work and the recipe is complete.

What effect did it have on your career?

Right after my PhD studies, my career took off. I worked for two



years in the USA as a postdoctoral researcher before returning to Greece, where I earned two more postdoctoral fellowships, a lectureship at the University of Western Attica, and collaboration with the Food and Agriculture Organisation of the United Nations, as well as several other opportunities that I had to turn down! I am currently working for a major private ISO-accredited laboratory. So, in a few words, the Walsh Fellowship worked for me!

What advice would you give to potential Walsh Fellows?

I would definitely recommend the Walsh Fellowship to young scientists who want to pursue a PhD in agricultural/food research. Start by getting more information on specific area(s) that match your interests, and get in contact with people within Teagasc who may guide you through the application process. You could be a future gold medal winner too!



Dr Michelle Whelan

Currently Agricultural Inspector – Head of Biocides Enforcement, Department of Agriculture Food and the Marine

Walsh Fellowship funded by the EU Sixth Framework Pogramme

What research did you do as a Walsh Fellow?

I was funded by the EU Sixth Framework Programme (FP6) to develop new multi-residue methods for detection of veterinary drug residues in foods of animal origin. I transferred the methods to EU and International Cooperation Programme (INCO) countries to conduct a survey of beef food safety. I also looked at drug metabolism in milk and cheese.

How would you describe your experience as a Walsh Fellow?

I thoroughly enjoyed my time as a Walsh Fellow in the Ashtown Food Research Centre. I was based in the Food Safety Department, which comprised staff, researchers and students. I found that there were always colleagues to support and encourage me. This experience promoted my individual thinking, and allowed me to collaborate within teams. I believe the Walsh Fellowship gave me a unique opportunity to carry out my PhD in a professional environment providing me with both experience and qualifications.

What effect did it have on your career?

The Walsh Fellowship provided me with opportunities I wouldn't



have received elsewhere. It allowed me to take on a lead development role in a sub-pillar of an EU FP6 project. This opportunity promoted teamwork, leadership and project management. The skills and particularly the work ethic fostered through the Walsh Fellowship have shaped my career. I believe the experience has provided me with the skillset required to receive a promotion after less than four years in the Department of Agriculture.

What advice would you give to potential Walsh Fellows?

Participate in everything and make the most of the many opportunities available for self-development. Give as many presentations as possible; they may seem daunting but it's great experience for your career. Give it 100% and it will repay you 10-fold.

Dr Noeleen McDonald

What research did you do as a Walsh Fellow?

My research was to develop a soil test that is practical and accurate in evaluating the native soil nitrogen (N) supply of Irish soils and their potential towards grassland production. The resultant test indicating varying N supplies from Irish soils has since been utilised in other research.

How would you describe your experience as a Walsh Fellow?

My PhD experience was a rollercoaster of challenges but overall very rewarding. It was demanding on my time, which I had to be very prepared for. I feel that from the PhD process I gained a lot of knowledge, skills and life experiences. I believe these valuable experiences were achieved by being based at a Teagasc centre and being able work alongside Teagasc staff across multiple disciplines, as well as having support from my university supervisors.

What effect did it have on your career?

Just before I submitted my thesis, based on the outputs and



experiences from my PhD, I was successful in securing a contract researcher position with the Teagasc Agricultural Catchments Programme, where I was able to develop as a researcher in understanding how to meet the challenges needed to enhance and benefit agriculture, food and the environment. At the beginning of August 2018, I took up my current position with the Department of Agriculture, Food and the Marine (DAFM) in the Research and Codex Division.

What advice would you give to potential Walsh Fellows?

If you want a career that is challenging and rewarding on various levels, then a PhD with the Walsh Fellowships Programme is an excellent place to start. But you should only do it on a topic that you are interested in.



Dr Patrick R. Gillespie

What research did you do as a Walsh Fellow?

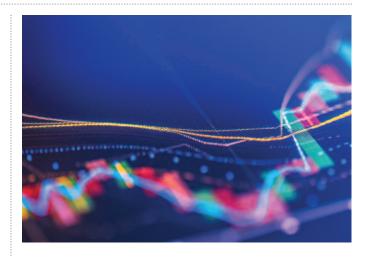
I investigated the technical efficiency and total factor productivity (TFP) of the Irish dairy sector. Using advanced econometric methods, I found that grass utilisation can improve dairy cost efficiency, that technical change drives dairy TFP change, and that the response to the abolition of milk quotas depends on agronomic and structural factors.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship is an excellent opportunity to learn from the leading lights in agriculture and the various disciplines that touch it. There were insightful seminars and conferences, as well as enlightening conversations with my thesis supervisors. These interactions helped me to develop an expertise in my topic area and in quantitative methods generally.

What effect did it have on your career?

16 Before the Walsh Fellowship I had a career in data collection. Now



people look to me for modelling and analysis. My day-to-day projects range from straightforward analysis of descriptive statistics right through to advanced econometrics and machine learning. The outputs of these analyses support the strategic decision-making of upper management. It was my time as a Walsh Fellow that gave me both the expertise and the confidence to engage in this type of work.

What advice would you give to potential Walsh Fellows?

Some of the most productive time is spent listening and presenting. Avoid the temptation to 'put the head down' if it means sacrificing interacting with (and learning from) your peers and advisers. Their comments are worth their weight in gold!



Dr Mary Harty

Currently

Post-doctoral Researcher, University

College Dublin

Walsh Fellowship funded by Teagasc

What research did you do as a Walsh Fellow?

I researched the impact of different forms of nitrogen (N) fertiliser on gaseous N emissions and grassland productivity. The results showed that urea combined with a urease inhibitor reduced both nitrous oxide (N $_2$ O) and ammonia (NH $_3$) emissions, and maintained yield. These results have been incorporated into the new calculations of the greenhouse gas inventory for Ireland.

How would you describe your experience as a Walsh Fellow?

It was at different times challenging, demanding and enjoyable. I worked with some fantastic people who always shared their knowledge very generously and I had great support both from my supervisory team and my peers. The fieldwork schedule was intensive, with lots of data to be analysed and results to write up. There were some successes and some failures, but the important thing is to not be disheartened but keep focused on the end goal. A really great experience overall.

What effect did it have on your career?

I was unaware, until I was applying for positions after my PhD,



how well recognised being a Walsh Fellow was within the scientific community. I believe the quality of the candidates, the nature of the work, the breadth and depth of the research and its relevance to the agricultural community makes Wash Fellows very employable both in industry and in academia. Both the Walsh Fellowship and the nature of the research were important factors in getting a relevant post-doctoral fellowship.

What advice would you give to potential Walsh Fellows?

If you are interested in research the Walsh Fellowship is a great way to get started. It's a supportive environment working with motivated and capable people. Choose a topic you are passionate about as it is easier to stay motivated.



Dr Leanne Roche

Currently
Assistant Agricultural Inspector, Department
of Agriculture, Food and the Marine

Walsh Fellowship funded by Teagaso



What research did you do as a Walsh Fellow?

I researched the effect of different nitrogen (N) fertilisers on spring barley production and environmental N losses. This research showed that protected urea produces the same grain yield while reducing nitrous oxide emissions (a greenhouse gas). This research is now included in the national emissions inventory and is a potential option for reducing greenhouse gases from the agriculture sector.

How would you describe your experience as a Walsh Fellow?

The Walsh Fellowship was a great experience with a lot of opportunities. It was challenging at times like any PhD but there was always support available from other Walsh Fellows as well as mentors, and it is a great network of support to have. The opportunities for attending conferences, networking and training were fantastic and overall I think this was a great experience.

What effect did it have on your career?

The Walsh Fellowships Programme is well recognised and being a winner of the Walsh Fellowship medal is a great achievement and was strongly recognised when I began my search for employment. The Department of Agriculture, Food and the Marine (DAFM) works closely with Teagasc and I believe the Walsh Fellowship PhD was an important factor in getting the current position I have as Assistant Agricultural Inspector.

What advice would you give to potential Walsh Fellows?

My advice to potential Walsh Fellows is to do it. If I can do it so can you. It's a great Programme with lots of opportunities for upskilling and career development. My main advice is to apply for any funding opportunities that are available to you (student competitions, conferences, your university, etc.). This will help you to stand out when you begin the job hunt.



Dr Aideen Kennedy



What research did you do as a Walsh Fellow?

My PhD looked at the diagnosis and control of Johne's disease on Irish dairy farms. The research was particularly focused on interactions between the TB test and Johne's disease enzymelinked immunosorbent assay (ELISA) diagnostics.

How would you describe your experience as a Walsh Fellow?

I thoroughly enjoyed my experience in Teagasc Moorepark. I had access to fantastic facilities, and dedicated supervisors and support staff. As a top dairy research facility, there were already collaborative links in place that were easily accessible. Furthermore, there was always encouragement provided to travel and learn. Aside from the learning opportunities, I found there was a great atmosphere in Moorepark and I made many friends while based there.

What effect did it have on your career?

My PhD allowed me to transition from working in veterinary practice to a career in research. Currently I'm working in the regional veterinary laboratories and I hope to be able to collaborate for many years to come with the many fantastic researchers I met while based in Moorepark.

What advice would you give to potential Walsh Fellows?

Perseverance is key. Results may not always be as expected but it is important to be flexible, adapt and value even the unexpected results!



Sinead Morrin

What research did you do as a Walsh Fellow?

My project investigated the effect of a bovine colostrum diet on the glycosylation pattern of the intestinal cell surface and how this, in turn, could shift the composition of microbial populations to facilitate improvements in health. This study provided an insight into how bacteria colonise the human gut and highlighted the potential of colostrum and milk components as functional food ingredients.

How would you describe your experience as a Walsh Fellow?

Being situated at an off-campus research centre for my PhD was a unique opportunity in itself and allowed me to be exposed to and collaborate more with various research groups while still being connected to a university. The Walsh Fellowships scheme provides support to the student and opportunities such as travel awards, which I myself found very worthwhile, to travel to different countries and gain new experiences. The Walsh Fellowships scheme provides a support system for the Walsh Fellow, which I 18 think is very important.

What effect did it have on your career?

My PhD has prepared me in many ways to take on new and greater challenges and responsibility. During the first years of my PhD, I became increasingly capable in my role and I became an independent learner. It has given me the skills and tools necessary to lead and carry out a research project at a high standard. It has definitely helped me to better realise the areas I would like to shift my career towards and has exposed me to the range of opportunities that are available to me.

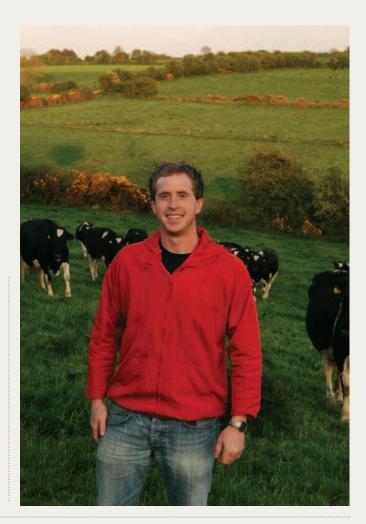
What advice would you give to potential Walsh Fellows?

We all know very little at the start and you may feel sometimes like an imposter who shouldn't be doing a PhD - that's so normal! Just work hard, meet deadlines and your project will flourish before your eyes.

Teagasc Denis Minogue Memorial Award

In 2017, Teagasc introduced an annual award in memory of Dr Denis Minogue (BAgrSc 2007, PhD 2012) a former Walsh Fellow in Moorepark and Research Officer at Teagasc, Grange. Denis died in 2014, after a long illness. This award is created in his memory to reflect Denis' deep interest in agricultural science and innovation as reflected in his BAgrSc studies in UCD and his doctoral studies in Teagasc Moorepark, and will leave a legacy that will extend far into the future.

The Teagasc Denis Minogue Memorial Award is awarded to the student who delivers the most innovative project as part of their examination of Irish farming and advisory service practices. Eligible students must be registered on the UCD MAgrSc in Agricultural Innovation Support or the MAgrSc in Agricultural Extension and Innovation Programmes.





Aisling Molloy

Currently

Drystock Business and Technology Advisor,
Teagasc, Kanturk, Co. Cork

Walsh Fellowship funded by Teagasc

What research did you do as a Walsh Fellow?

My research examined how Teagasc advisory services can improve engagement with and empowerment of farm women. The aim was to establish the current level of engagement of farm women in Co. Wexford with advisory services, to identify their knowledge needs, and examine ways to increase their engagement to support and empower their role within family farms.

How would you describe your experience as a Walsh Fellow?

It was absolutely fantastic. It helped to develop my critical thinking, presentation skills, organisational skills and research skills. The Masters in Agricultural Innovation Support [MAIS] programme was extremely practical, as I worked closely with an advisor in the Teagasc Enniscorthy advisory office while completing my thesis. This greatly enhanced my self-discipline, technical knowledge, teamwork skills and networking opportunities. The experience has definitely made an invaluable contribution to both my personal development and my role as an advisor today.



What effect did it have on your career?

The Walsh Fellowship is the reason that I am in my current position. It gave me the confidence and opportunity to present at events such as BEEF2016, the Walsh Fellowships seminar and the European Society for Ecological Economics (ESEE) conference in Crete. I met a lot of people in the agricultural industry through various events and gained a huge amount of practical experience. It equipped me with the critical standard of skills and experience that was necessary to secure my current job.

What advice would you give to potential Walsh Fellows?

Take every opportunity, no matter how small, that comes along. Every connection you make and every experience you have will gradually build up to get you where you want to be in your career. The best learning comes from outside of your comfort zone – don't be afraid to step outside of it!

