Careers in Research

Insights from members of the Teagasc research community

Name: Harsh Mathur
Position: Research Officer
Specific area of research:
Investigating the health benefits of lactic acid bacteria (LAB) fermentates

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh
Bachelor of Science (BSc) in Microbiology

IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn
PhD: *Thuricin CD: a potential therapeutic targeted against Clostridium difficile-associated diarrhea (CDAD)*

teagasc
Agriculture and Food Development Authority
Post Doctorate: Microbiology Technician

fhi
Research Officer

My current work involves investigating a large number of 'friendly bacteria' that were isolated from dairy products. These 'friendly bacteria' belong to a group called lactic acid bacteria (LAB). More specifically, my project involves testing the effects that each of these bacteria have on gut health with regards to reducing gut inflammation, altering the balance of bugs in the gut, improving nutrient absorption etc. To do this work, we collect faecal samples from a number of volunteers from the general public, and set up a model in the lab to mimic the conditions we find in our own guts. By using this model, we will be able to determine which of these friendly bacteria have the most beneficial effects, and which could be potentially used as probiotics to improve gut health, and in turn, overall health. I chose to get into this area as I was always interested in gut health in general and the concept of taking 'friendly bacteria' as probiotics to fight off disease-causing bacteria in the gut, as well as reducing inflammation fascinates me. My previous position in the APC Microbiome Ireland involved working with these LAB, which prepared me well for this current position.

In the future, I hope to continue similar type of research in a laboratory setting, either in an academic research lab or as part of a lab in industry.

Name: Maryanne Hurley
Position: PhD Research Student
Specific area of research:
Grassland management for dairy cow production systems

University College Dublin
Ireland's Global University

Agricultural Science Degree (BSc Ag)

WALSH FELLOWSHIPS PROGRAMME

University College Dublin
Ireland's Global University

PhD: *The effect of white clover inclusion into perennial ryegrass only pastures on dairy cow production and farm profitability*

Coming from an agricultural background I knew I wanted to remain involved in the industry. I found the Agricultural Science course in UCD, for my CAO, that combined some science subjects I enjoyed in school and could potentially provide me with a career to enter into the industry. After finishing my undergrad, I knew I still needed to improve my skill set and experience in the dairy industry. The chance to work and study in Moorepark was provided in a PhD research program, so I applied and I've been here ever since. My combined college and Moorepark experience have helped me become a talented grassland researcher possessing in depth knowledge of pasture based ruminant production systems, specialized in dairy systems, and showcase my passion about environmentally and economically sustainable farm systems. In my third year now, I hope to submit and graduate in 2020. I'm a little unsure where to go next but with the experience I've built up to date it will give me a great introduction into the professional world.

Name: Tom Byrne
Position: Post-Doctoral Researcher
Specific area of research:
Digital technologies used for precision livestock farming

DCU
Mechatronic Engineering (B Eng)

WALSH FELLOWSHIPS PROGRAMME

DCU
PhD: *Disease detection in cattle and sheep with the use of sensor technology in an agricultural environment*

Teagasc
Agriculture and Food Development Authority
Post-Doctoral researcher supporting companies applying technology to agriculture

I have always enjoyed understanding how things work and how technology can be used to make life simpler; this lead me to do engineering in college. Over the years I developed a passion for farming which made me want to apply my engineering skills to agriculture. When the PhD was advertised it was the perfect opportunity for me to use my engineering skills in agriculture. In my current role, I support companies by finding funding for their ideas and also helping them test their products in a real world farm environment. Some of the sensors I have worked with include thermal cameras to detect disease, 3D-cameras to scan the body condition of a cow and ears tags for cows which can be used to measure an animals activity or her location while at grass. I would like to stay working with Teagasc for the foreseeable future as it allows me to combine my two passions (agriculture and engineering) to make a real world impact.

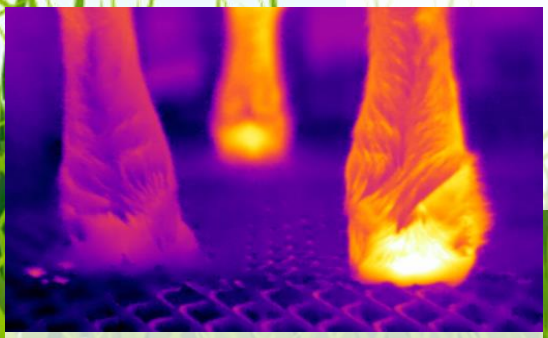

Figure : A thermal image (blue = cold, white = hot) of a healthy hoof (left) and an infected hoof (right) of a sheep

Name: Wendy Conlon
Position: Advisory and Education
Specific area: Equine Specialist

University of Limerick
Ollscoil Luimnigh
Equine Science (BSc)

Waterford Institute of Technology
Higher Diploma in Farm Financial Management

Teagasc
Agriculture and Food Development Authority
Equine Specialist

My career in Teagasc commenced in 2002. The role has developed and changed massively over the years. It is an interesting and varied role, where I play a part in positively influencing the sport horse sector both at farm gate and in a strategic way through engagement with breeders, producers and industry stakeholders at policy level also. As part of a team, I was involved in developing a strategy for the sort horse sector to 2025; we deliver educational activities including seminars, demonstrations, conferences, courses, discussion groups, tours abroad, press articles and other supports. I continue to engage in personal development undertaking in-house and other short course training activities which is always good to challenge your thinking and reappraise how you work. I am fortunate and of course often challenged by the fact that the work is so varied. The role relies greatly on building and sustaining relationships and often playing the role of facilitator between other parties. Effective communication and interpersonal skills coupled with attention to detail and a passion for the subject go a long way to customer satisfaction.

Name: Deirdre Hennessy
Position: Research Officer
Specific area of research:
Grassland – Incorporating white clover into grass based milk production systems; Development of a predictive grass growth model.

University College Dublin
Ireland's Global University

Agricultural Science Degree
(BSc Ag)

WALSH FELLOWSHIPS
PROGRAMME

QUEEN'S UNIVERSITY BELFAST

PhD:Manipulation of grass supply to meet feed demand of beef cattle and dairy cows

teagasc
Agriculture and Food Development Authority

Research Officer

I am a grassland research officer examining the role of white clover in our dairy production systems. I design and manage grazing and plot based experiments. I statistically analyse data and I write papers. I also work on a project in which we have developed a predictive grass growth model which will provide farmers with a prediction of grass growth for their farm. I supervise a number of PhD students. I present my research at scientific conferences and at conferences for farmers and industry people, as well as open days and at farm walks. I lecture to university students, organise open days and conferences. I am the Senior Editor of the Irish Journal of Agricultural and Food Science.

I chose to work in this area because I like agriculture, I like working with cows and grass. The job gives me a mixture of indoors and outdoors. I want to make a difference in grassland production and management and this job provides me with the opportunity to do that. I also love working with students.
In the future I want to continue working in grassland science and develop more research in the area of sustainability.

Name: Stephen Moore
Position: Contract Researcher
Specific area of research:
Dairy cow reproductive biology

University College Dublin
Ireland's Global University
Animal and Crop Production
(BSc Ag)

WALSH FELLOWSHIPS
PROGRAMME

University College Dublin
Ireland's Global University
PhD: *Genetic control of dairy cow reproduction*

Mizzou
University of Missouri
Post Doctorate: Uterine transcriptome and microbiome in dairy cows

Teagasc
Agriculture and Food Development Authority
MARIE CURIE ACTIONS
Researcher: Dairy cow reproductive biology

My interest in reproductive biology began when taking the animal reproduction modules while studying Animal and Crop Production in University College Dublin. I was fascinated by the biology of the uterus and the ovary and the role the reproductive hormones in the estrous cycle. My first exposure to research came when I completed my third-year work placement in Teagasc Moorepark working on a fertility project with a PhD student. From then on, I knew that this was for me. So after my undergraduate, I returned to Moorepark to undertake my own PhD, working on the same fertility project that I had worked on a year previously!

A career in research can be very rewarding and fun. I have developed a hugely varied skillset including experimental design, data analysis, communications, and animal and laboratory skills. There have been lots of opportunities to travel and to meet and work with lots of great people. I have worked in Melbourne and Missouri and attended conferences throughout Europe and the United States. It is particularly rewarding when the results of our research lead to progressive changes on farms and in the wider industry.

For the future, I am eager to continue developing my research career in dairy cow reproductive biology, encouraging student development, assisting colleagues and promoting a sustainable dairy industry.

Name: Tara Carthy
Position: Post-Doctoral Researcher
Specific area of research:
Genetics and genomics

University College Dublin
Ireland's Global University

Animal Science
(BSc Ag)

WALSH FELLOWSHIPS
PROGRAMME

University College Dublin
Ireland's Global University

PhD: Genetics of reproductive performance in dairy and beef cattle

teagasc
Agriculture and Food Development Authority

Post Doctorate:
Precision Breeding

My work involves trying to find differences in an animal's DNA that can be connected to difference in an animal's "phenotype" or more simply the physical differences between animals. The differences I look at can relate to production performance (i.e. milk and meat production) or functional performance (i.e. health). The goal of my work is to identify genetically better animals that are better equipped for the future.

Initially I did not choose this area but my undergraduate degree was a broad course that covered a lot of areas in agriculture. From being exposed to this diversity I was able to get a better idea of what I enjoyed and the study of genetics appealed to me the most. After finishing my degree I then choose to follow in this area. In the future I would like to follow on in this area but I will remain open to what this path would be.

Name: Tomas Tubritt
Position: PhD Research Student
Specific area of research:
Evaluation of perennial ryegrass varieties for ruminant production systems

University College Dublin
Ireland's Global University

Animal and Crop Production
(BSc Ag)

WALSH FELLOWSHIPS
PROGRAMME

QUEEN'S UNIVERSITY BELFAST

PhD: Evaluation of perennial ryegrass varieties for ruminant production systems

I grew up on a tillage farm in Wexford and had an interest in the agricultural (predominantly tillage) industry all my life and so I did Animal and Crop Production in UCD. The most enjoyable part of my undergrad career was Professional Work Experience. Here I attended various placements in all Agriculture sectors. I really enjoyed my dairy placement in particular where I worked on a large dairy farm in Cork for 12 weeks during the calving season. This farm had a strong grass focus which I enjoyed and whilst coming towards the end of my time in UCD, a Walsh Fellow PhD position focusing on grass varieties was advertised. I successfully interviewed for the position and after careful consideration and communication with my soon to be supervisor, Dr. Michael O' Donovan, I accepted the position and began working 3 weeks after my final exams. I have been undertaking trial work for the past 2 years and I really enjoy it as there is a great balance between hands-on, practical trial work and using your head to analyse and solve problems. I aim to finish my PhD next year and to pursue a career within grassland science, be that within the industry or involved with research.

Name: Aisling O'Connor
Position: PhD Research Student
Specific area of research: Economic and Environmental impacts of disease in pasture-based dairy cows

University College Dublin
Ireland's Global University

Animal Science
(BSc Ag)

WALSH FELLOWSHIPS
PROGRAMME

WAGENINGEN
UNIVERSITY & RESEARCH

PhD: Economic and Environmental impacts of disease in pasture-based dairy cows

My interest in Agriculture started during 6th year in secondary school after attending the Higher Options event. I didn't take Agricultural Science as a Leaving Certificate subject and wasn't coming directly from an agricultural background, but for some reason the science behind agriculture drew me in. While studying Animal Science in University College Dublin, I then developed a strong interest in the sustainability of agricultural systems. Taking modules like Global Environmental Change & Agriculture during my undergraduate degree certainly opened my eyes to the bigger picture and the importance of sustainable agricultural systems. Following on from this I began my post-graduate studies with Teagasc and Wageningen University, on the topic of the economic and environmental impacts of diseases in pasture-based dairy cows.

Dairy cows produce a significant amount of milk which requires energy. Therefore when dairy cows have a disease, some of this energy (that is usually used to produce milk), is instead used by the cow to recover back to good health which reduces milk production efficiency, increases feed required by the animal and probably veterinary advise and medication costs. This recovery period can increase both the economic and the environmental impact of milk production, which is costly to both farmers and our planet. The aim of my project is to highlight the importance of healthy cows in relation to sustainable milk production.

Name: Phoebe Hartnett
Position: PhD Research Student
Specific area of research:
Swine health, behaviour, nutrition and welfare

University College Dublin
Ireland's Global University

Animal Science
(BSc Ag)

WALSH FELLOWSHIPS
PROGRAMME

UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

PhD: Strategies to optimise gilt lifetime performance

This PhD is a longitudinal gilt (a maiden female pig) rearing study researching strategies to optimise gilt lifetime performance and also their offspring's performance in terms of health and welfare. I have hypothesised that rearing gilts separate from male pigs and feeding them a diet designed for structural development by including supplemented trace minerals would benefit their limb health and thus enhancing their welfare.

I got a taste for research while volunteering in Lyons research farm during my second year in animal science from here I explored many areas of research including sheep, dairy and pigs. During my pig placement on a research project in the Moorepark Pig Development Department in 2014, I decided I wanted to do a PhD of my own in pig health and welfare, fortunately when I graduated an opportunity to apply for my current PhD position came up in Moorepark.

I will definitely stay in research. My next step will be to do a post-doctorate. This will help me develop my skills and become an established researcher. I love the education side of things so I would eventually like to get into teaching or lecturing but for the next 3-5 years I would like to gain as much research experience as possible. My areas of interest include animal health, welfare, nutrition and behaviour.

What piece of advice would you give your pre-Leaving Certificate self?

- I would tell myself to carefully think about what I would like as a career and what my talents, strengths and weaknesses are. I would tell myself to carefully think whether I have the dexterity to be a skilful dentist and perhaps undertake work experience in a dental practice before applying for Dentistry in the CAO system, rather than being obsessed with the points system.

  – Harsh

- Don't panic or stress! Ask for advice. Don't be afraid of criticism and take comments from experienced people. Leaving Certificate results are not the be all and end all! Go and look for work experience and embrace the challenges and dynamics of working somewhere new. Make yourself known as more than just the student working for a short period of time if you enjoy the work. What's for you won't pass you but you won't earn anything from doing nothing or making no effort! Use your strengths and learn to be confident in subjects you are passionate about.

  – Maryanne

- Make sure to know when to work hard in college so you can enjoy college for another year. Finding a small group of friends to study with makes the whole process easier.

  – Tom

- Explore your career options. There are so many college choices out there. Read up on the courses and if you can speak to someone who is currently doing the course or who has completed the course. It doesn't matter if you don't know what you want to do with the rest of your life, choose a course you think you like/will enjoy and you will find your career after. Try to do some science subjects for the Leaving if you want to study a science related course in college.

  – Deirdre

What piece of advice would you give your pre-Leaving Certificate self?

- Prior to my Leaving cert I thought I only wanted to pursue a career in the tillage industry. Looking back my advice to myself would be keep my options broad for as long as possible. My work experience allowed me to see how other agricultural sectors operate and it fostered a love for grassland in me. Had I done a sole arable science degree I would have never learned this about myself.

  – Tomas

- Say yes to every opportunity that comes your way.

  – Stephen

- Don't stress so much. Follow your gut feeling always; it generally gives you the right answer.

  – Wendy

- Don't stress too much about what you are going to do after school there are many routes to get to where you want to go and often where you want to go will change over the next few years. You don't have to have it all figured out but give yourself the best possible chance by studying and get the best marks for yourself.

  – Tara

- Apply for everything that interests you, you never know where it will take you.

  – Aisling

- Figuring out what you're not interested in is just as important as finding out what you are interested in. There are so many options and opportunities and once you find what you like there will be a way to achieve it. Don't be afraid to explore all of your options and to take your time with decision making. Personally, repeating my leaving cert for 9months saved me from 4years in a course that wasn't for me. It also gave me an opportunity to explore more leaving cert courses such as Agricultural science, and this is where I found my passion and placed Agricultural science in UCD on my CAO.

  – Phoebe

Outreach and Communications Committee