



**Submission to Joint Committee on Agriculture, Food and the Marine  
For Presentation on 29th May 2018  
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I thank the Chairman and the Committee for the invitation to speak to you this afternoon.

University College Dublin (UCD) is the largest university in Ireland and is ranked within the top 1 per cent of universities worldwide. UCD has a strong track record of education and research in agri-food and has the only veterinary programme in the Country. Our researchers are supported by and collaborate with many organisations including the Department of Agriculture, Food and the Marine, Irish industry, the European Union and other international partnerships.

This afternoon, I will briefly outline key challenges with which we are all familiar and then highlight how UCD and its partners are addressing these challenges. Ireland and Irish farming has the opportunity to be at the forefront of this change. We can and should be leading this discussion in Europe and challenging the EU to look beyond its borders to show leadership internationally. The Future of Farming and Food, the upcoming Multiannual Financial Framework and CAP reform are all important legislative and policy agendas for this and it is critical that we are a leading voice in all of these.

So, first to the challenges of global food production, nutrition, sustainability and economic growth in the agrifood sector. We have a growing middle class with increased demand for safe food. At the same time 1 in 3 of the world's population are malnourished leading to a range of complications. Of the 6 WHO regions, Europe is most severely impacted by non-communicable diseases. Climate change impacts are real and are felt. In Ireland, we risk exceeding our emissions targets and being fined for doing so. Whatever we do from this moment on, must address climate impacts. Finally, globally, 28% of the world's population are directly or indirectly employed by agriculture. The food and drink sector is Europe's largest manufacturing sector and in Ireland it employs over 170,000 people.

The complication arises in that all these challenges must be solved together. The good news is that this is a great time to be solving a complicated problem. We have new knowledge in key areas of precision agriculture using satellite and new digital technologies, in nutrition taking advantage of the advances that decoding our DNA can bring, in sustainable production where new knowledge of soils and disease can increase yields and in processing where new technologies build value from waste.

The challenges and solutions are interdependent and a whole systems response is needed. This is where policy can help. Complimentary policies that drive innovation and invest in change can help the agrifood sector make the step change needed to create a different, high-value future for Irish agriculture.

At UCD, we are in the business of generating new knowledge and educating future business people, lawyers, scientists, programmers and farmers. We believe it's an exciting time to be in the food and farming sector, but we are fully aware that it doesn't feel that way. We all need to work together to make farming a compelling career choice. Part of the challenge nationally is funding the investment needed to make living life in rural communities more attractive. It's important that these communities have access to schools, hospitals and basic broadband infrastructure.

These challenges go beyond what UCD can resolve, but today we want to give some practical examples of how the future of farming and food is changing, how we are working with others to



deliver on that change and how this change can engage young farmers in a diverse and technologically advanced career. I will focus on three examples that highlight:

- The opportunities in the emerging bioeconomy
- The use of ICT in agriculture or precision agriculture
- The future food and nutrition

### **The Bioeconomy – an Opportunity for Ireland to Lead**

The bioeconomy is an exciting new area that is full of opportunity for Ireland. Using new processing technologies, we can maximise the value extracted from our agri- and marine resources, and replace fossil-based fuel products like adhesives and plastics with bio-based alternatives. These extracts can also have significant nutritional benefit and become high-value food additives, or the base for nutraceuticals.

At UCD, we have championed the development of a bioeconomy campus in Lisheen, Co. Tipperary as a tangible example of the opportunity that is open to us in Ireland. The campus received model demonstrator region status from the European Union and will soon become home to a pilot plant, a teaching and research unit and a large-scale biorefinery. The bio-refinery, led by Glanbia, will be a world first in converting by-products from the dairy industry into high value bio-based plastics. It recently secured €22M in funding from the EU, the largest single investment in an Irish project under Horizon 2020.

The campus is a great example of industry, universities, IoTs, local government and communities working together to revitalise a region. We in UCD developed the new knowledge and technology, while industry along with a supportive local government took the technology forward developing a whole new business line. When the Lisheen mine closed, the local economy in Tipperary lost €50M, repurposing the site, powering it with renewable wind power and bringing companies together to create a vibrant bioeconomy cluster. This will add €75M to the local economy and is estimated to bring 1,800 jobs over the next 3 to 5 years, directly and indirectly to the region.

This is just the start, the opportunity for Ireland to reach back to its raw material production base and identify the value that can be extracted is immense. Importantly, this value should flow across the value chain from producer to consumer.

### **The Use of ICT in Agriculture or Precision Agriculture**

The ICT and agri sectors are two in which Ireland excels. The impact of artificial intelligence and data driven technologies coupled with on-going advances in disease, soil and animal management can bring new opportunities for production. Science and research can and will ensure that prediction systems of the future will be as efficient, sustainable and value creating as they can be.

UCD and Origin Enterprises are currently working together, in an SFI research partnership, to develop an intelligent crop management system to substantially increase crop yield. This will optimise arable crop production by providing rapid, reliable, relevant, localised and timely information to farmers and agronomists. Using satellite and on the ground information, information will be presented to the farmer through a simple interface on a phone or other device.

We believe the gains in yield will be significant. At the same time, the solution aims to decrease the environmental impact of production. This is another example of taking knowledge from a range of sectors and areas and combining them to provide an integrated solution that increases production, decreases environmental impact and produces economic returns.

We are also looking at similar solutions in the dairy environment.



### **Food and Nutrition**

UCD has world-leading expertise in agriculture and food science and is home to programmes such as the Food for Health Ireland Technology Centre (FHI). Its research programme focuses on using smart technologies to develop, market and sell functional ingredients to improve health and wellness. FHI's activities help diversify the current product portfolio of Irish dairy producers from high volume, low margin commodity suppliers, to producers of niche high-value biologically active ingredient specialists.

UCD are also leaders in the field of food safety. This Committee will be aware of the importance of Ireland's reputation for safe, high quality food, particularly as we develop new international markets – a priority that is gaining urgency to mitigate the Brexit shock to the sector. Faculty, from UCD's Institute for Food and Health, have long and strong links to the Chinese National Institute for Nutrition and Food Safety. These relationships contributed to the recent approval of Irish beef for export to China.

### **Future for Young Farmers**

As the Committee has highlighted there is concern about opportunities for young people to choose a future in farming over other options. We need to work together to make farming a compelling career for our ambitious young people. If we can create the right environment for innovation and for a step-change in our agrifood sector, future farmers will be data analysts, technologists and entrepreneurs. They will continue to be custodians of the land but will do so using different approaches and tools. We in UCD, along with our partners in the IoTs and Teagasc share a challenge in educating the farmers of the future and in creating the conditions for a viable economic future for them.

### **Summary/Conclusion**

To conclude, there is an opportunity for us to create a bright and vibrant future for Irish agrifood sector and to lead this discussion in Europe. We need to look at innovative ways of using new knowledge coming from multiple areas to solve the interdependent challenges of nutrition, production, environmental and economic sustainability, in an integrated way. In doing so, we will need to work differently, creating new partnership models between universities, industry, farmers, local government and civic society. We at UCD are confident that this can be achieved and, in some areas we are already doing it.