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

eip-agri
AGRICULTURE & INNOVATION

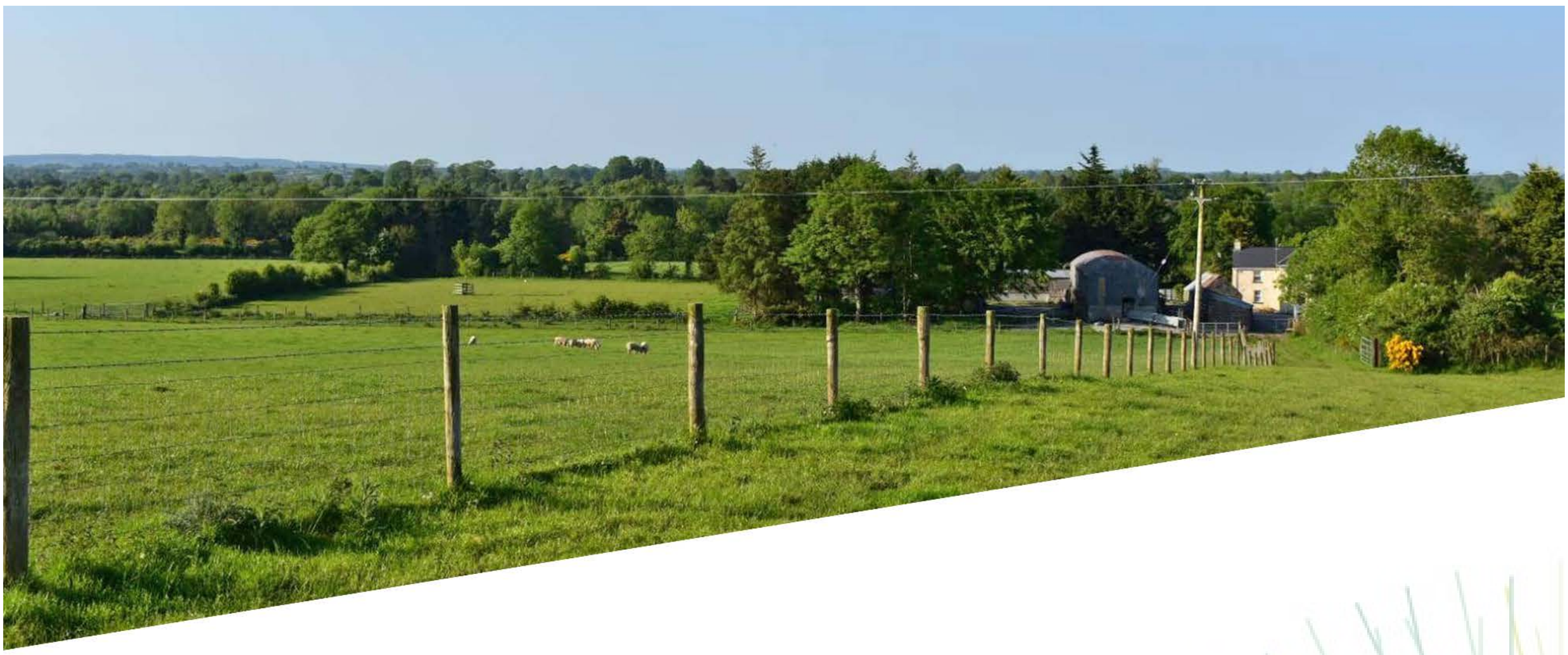
Multi-Actor Perspectives:

EIP-AGRI Guest Blogs – Rural Development Programme (RDP) 2014-2020

NU Galway Rura Studies

National Rural Network

NUI Galway
OÉ Gaillimh



eip-agri

AGRICULTURE & INNOVATION

Prepared by the National Rural Network team at NUI Galway on behalf of the Department of Agriculture, Food and the Marine

Complied and designed by Dr. Shane Conway, Postdoctoral Researcher at NUI Galway and the National Rural Network.

To cite this publication: Conway, S.F. and Farrell, M. (2020) Multi-Actor Perspectives: EIP-AGRI Guest Blogs – Rural Development Programme (RDP) 2014-2020, National Rural Network, Department of Agriculture, Food and the Marine.

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

The European Agricultural Fund for Rural Development:
Europe investing in rural areas

Ireland's European Structural and Investment Funds Programmes 2014-2020
Co-funded by the Irish Government and the European Union

National Rural Network

Multi-Actor Perspectives

Table of Contents

Table of Contents

Table of Contents

EIP-AGRI: Building Bridges Between Research and Practice

Academics studying 'Rural Development' often discuss the concept of 'Rural Restructuring', which examines fundamental changes occurring in rural areas. The foremost transformation we have witnessed over the last number of decades in rural regions has been the shift in agricultural practice, policy and lifestyle. Such changes have allowed us witness the true resilience and adaptability of the farming community, the farm family and indeed the key stakeholders surrounding this community. A combination of these changes, adaptability and flexibility were key ingredients in the success of the European Innovation Partnership for Agriculture Programme (EIP-AGRI) initiated in the European Commission in 2012 and later in Ireland. In 2016, the Department of Agriculture, Food and the Marine, set about selecting 23 EIP-AGRI Operational Groups, which currently address such agricultural challenges as biodiversity, profitability, sustainability and innovation. The eventual success of these projects will ultimately lie in the manner in which, for example, they enhanced the profitability of organic crops via the MOPS project or how they demonstrated small-scale grass biorefinery via the Biorefinery Glas project. The real success of the EIP-AGRI Programme however, may well lie in the multi-actor approach, which is the central ethos of each Operational Group.

Historically, the Irish farming community would have often worked in tandem with one another, neighbours helping neighbours, families assisting families, but in our more recent history, our 'coming together' approach to solving faming problems, or 'lending a hand' has somewhat declined. The multi-actor approach embedded in the EIP-AGRI Programme reignites this methodology. It allows farmers, communities, advisors and those with educated knowledge to become part of the process of finding a new and innovative solution to a pressing problem or issue around the farm or land. In reading Dr Brendan Dunford's blog in this booklet, there is strong evidence of an EIP-AGRI project, before it ever became fashionable within the European Commission. The farming community in the Burren came together with researchers and local advisors to design an approach to biodiversity and farming, which suited their land and their farming practices. The multi-actor approach used in the Burren laid the foundation for many of the current practices undertaken by Ireland's EIP-AGRI Operational Groups, who according to Dr James Moran in his blog, learned from the success of the Burren Programme.

Ireland's current EIP-AGRI Operational Groups bring people and communities together by enhancing networking, but more importantly, it encourages the building of bridges between research and practice. Evident in all Operational Groups, but emphasized expertly by Eamon Wall as he writes in his blog about how the OviData EIP-AGRI project has used sheep genetic research to boost farm profitability and by Ethan Cleary who highlights the importance of the Digital Age, which can enhance the viability of Irish farm families, but also their health and well-being. The EIP-AGRI Programme is still relatively new to Irish farmers, advisors and researchers, but the success of the 23 Operational Groups to-date, lies not only in the innovation of their projects, but in their ability to engage with the multi-actor approach. Operational Group success will eventually be measured by the innovative results of each project, but the lasting triumph and legacy of the groups will lie in the networks they formed and the communities they brought together to work on a shared problem, issue or interest.

Dr Maura Farrell
NUI Galway
National Rural Network Team

EIP-AGRI Guest Blog Author Profiles

Dr Brendan Dunford, Manager of the Burren Programme

Dr Dunford is a farming background in Co. Waterford, Brendan has spent over 20 years living and working in the Burren. He led the award-winning BurrenLIFE Project and today manages its successor, the 'Burren Programme', working with 330 farmers on 23,000ha of land. Along with his late wife Ann, Brendan co-founded the Burrenbeo Trust which aims to 'connect all of us to our places and our role in caring for them'. He is a founder of the 'Farming for Nature' initiative which aims to encourage and support nature-friendly farming. In 2018 he was awarded an Honorary Doctorate by NUI Galway for his work in championing biodiversity.

Gillian Westbrook, Maximising Organic Production Systems (MOPS) EIP-AGRI Project Manager and CEO of the Irish Organic Association (IOA)

Gillian is the CEO of the Irish Organic Association, the main certifying body for organic production and processing in Ireland, and she is the Project manager for the MOPS EIP-AGRI Project. Gillian has worked for over 30 years in the area of food & agriculture law and policy. She has worked for a wide range of agri-food business, including large cooperate companies, State agencies, artisan producers and farm lobby organisations. *Twitter: @mopsorganic*

James Gaffey, Co-Director of the Circular Bioeconomy Research Group (CIRCBIO) at Shannon ABC in IT Tralee and Coordinator of the Biorefinery Glas EIP-AGRI Project

James Gaffey is Co-Director of the Circular Bioeconomy Research Group (CIRCBIO) at Shannon ABC in IT Tralee. James is Principal Investigator on the BBI JU ICT-BIOCHAIN and BIOSWITCH projects and currently coordinator of the EIP-AGRI Biorefinery Glas, small-scale grass biorefinery demonstration project. He is academic collaborator in the SFI BiORBIC Research Centre and part of the SFI Farm Zero C team. James is part of the core programme development team and lecturer on the Postgraduate Diploma in Bioeconomy with Business co-developed by IT Tralee, UCD and Teagasc. He has been a regular contributor to European-level studies into circular bioeconomy and is currently a member of the Expert Panel for the Impact Assessment of the European Partnership for a Circular Biobased Europe under the future Horizon Europe programme. James joined IT Tralee in 2016, working as biorefinery specialist on the EU Horizon 2020 AgriForValor Project. Prior to this, James worked in the biorefinery industry since 2009 with Sustainable Biopolymers, Cellulac Ltd and the Technology Centre for Biorefining and Bioenergy (NUI Galway) and through projects including Bio-Eire, Future European League for Microalgal Energy (FUEL4ME) and Sustainable Polymers from Algae Sugars and Hydrocarbons (SPLASH).

EIP-AGRI Guest Blog Author Profiles

Peadar Casey, Innovation and Enterprise Development Manager at Institute of Technology Carlow (IT Carlow)

Peadar is the Enterprise Development Manager at Institute of Technology Carlow, with particular interest in regional entrepreneurship ecosystem development. Peadar manages ERIC (Enterprise Research Incubation Centre) centre where there is a particular emphasis on the practical application of technology within both rural and urban environments, and associated industries. Peadar has over 25 years' industry experience, with over 15 years working for a multinational food organisation, in Ireland, UK and across EU markets. His role within the corporate environment involved enterprise and business development across international markets within an entrepreneurial culture and environment. Peadar also worked as an independent consultant for over 10 years – providing services in engineering, ICT, agriculture, energy and food industries in conjunction with enterprise development agencies initiatives.
Twitter: @PeadarCasey

Dr Amanda Browne, Scientific and Technical Officer of the Caomhnú Árann EIP-AGRI Project

Dr Browne is Scientific and Technical Officer of the Caomhnú Árann EIP-AGRI Project. She also worked in this role for the preceding AranLIFE project since 2014. Prior to AranLIFE, Amanda was a professional ecologist with 15 years' experience working in the private sector. As an Ecological Consultant, she worked with a wide variety of stake holders including private landowners and farmers as well as state companies and bodies and worked throughout the country surveying, scientific monitoring and reporting on a wide range of habitats.
Twitter: @CaomhnuArann

Dr Derek McLoughlin, Project Manager at Wild Atlantic Nature LIFE IP

Dr McLoughlin is an agro-ecologist that has been working in the area of ecology from his native Westport, County Mayo since 2003. Derek has extensive experience working in broader ecological consultancy and on agri-environmental projects including the national GLAS farm agri-environment scheme. Derek has worked as Project Coordinator for the Results-based Agri-environmental Pilot Scheme (RBAPS) Project for the European Forum on Nature Conservation and Pastoralism (EFNCP). Dr McLoughlin was Assistant Project Manager on the Pearl Mussel Project European Innovation Partnership (EIP-AGRI) up until November 2020. He has extensive experience on the development of results-based agri-environment schemes in Ireland and in other EU member states.

EIP-AGRI Guest Blog Author Profiles

Verena Berard, CUA PhD Scholarship Postgraduate at IT Sligo and Galway Mayo Institute of Technology, Mayo campus (GMIT)

Verena is a CUA PhD Scholarship Postgraduate at IT Sligo and GMIT. Her MA research as part of the RISE GMIT scholarship concentrated on hill farmers' attitudes towards the Green Low-carbon Agri-environmental Scheme (GLAS). Verena's PhD research seeks to critically evaluate hill farmers' local environmental knowledge and attitudes towards biodiversity conservation and ecosystem services in results-based Hen Harrier and Pearl Mussel Project (EIP-AGRI).

Eamon Wall, OviData EIP-AGRI Project Leader

Eamon leads up the OviData EIP-Agri project and is the former lead of Irelands sheep breed improvement programme run by Sheep Ireland. This programme has grown rapidly since it began in 2009 and Irish sheep farmers can now use the information generated by Sheep Ireland to boost farm profitability by using the best sheep genetics available. Eamon also farms part-time on his sheep and suckler farm in Co. Waterford so is well placed to identify the current day challenges facing Irish farmers. Twitter: @DataOvi

Dr Barry McMahon, Associate Professor in the School of Agriculture and Food at University College Dublin (UCD).

Dr McMahon is an Associate Professor in the UCD School of Agriculture & Food. His research examines the interaction between agriculture and biodiversity, principally endangered farmland birds e.g. curlew Numenius arquata and whinchat Saxicola rubetra. In addition, his research examines diseases, including antimicrobial resistance, that are reservoired in or disseminated by wild birds and mammals. Overall, the theme of Dr McMahon's research relates to the One Health initiative and this is a core feature of the MSc in Wildlife Conservation & Management of which he is the Programme Director. Twitter: @barryjmcmahon

Dr Jack McCarthy, Post-Doctoral Fellow at Teagasc's Rural Economy and Development Programme

Dr McCarthy is a Post-Doctoral Fellow at Teagasc's Rural Economy and Development Programme and holds a PhD from University College Dublin's School of Geography. His research looks at the governance of European agriculture. He is particularly interested in processes of collaboration between government, farmers, and other stakeholder for achieving socially, economically, and environmentally sustainable agricultural production. He is currently involved in research on the impacts of technological change in Ireland's agricultural sector.

EIP-AGRI Guest Blog Author Profiles

Dr James Moran, Lecturer in Biology and Ecology at Galway Mayo Institute of Technology (GMIT)

Dr Moran's research and outreach work concentrates on sustainable agricultural systems specialising in High Nature Value farming. He has worked in this field for over 15 years and leads a number of projects in this area at GMIT and IT Sligo. Dr Moran is particularly interested in the potential of a HNV farmland network where innovative local communities can work in partnership to realise a sustainable future for their area. Most recently, Dr Moran led a workshop on the topic of European Innovation Partnerships at the annual Burren Winterage School held in October 2017.
Twitter: @MORANEnv

Dr Barry O'Donoghue, Head of Agri-Ecology with the National Parks & Wildlife Service (NPWS)

Dr O'Donoghue hails from the Kingdom of Kerry where he grew up in the Stack's Mountains with a combination of farming and nature interests. Barry did his undergrad at UCD on Agriculture and Environment, followed by a Research Master's on the Hen Harrier and a subsequent PhD on the ecology and conservation of Hen Harriers, while also working as a Ranger with NPWS. Barry has a keen interest in sports, our coast and seas, farming, communities and nature. At present, the next Rural Development Programme, Curlew, Corncrake, raptor poisoning and persecution and the NPWS Farm Plan Scheme are just some of the various topics that the Agri-Ecology Unit of NPWS are working on.
Twitter: @npwsBioData

Kieran Sullivan, IT Researcher at Waterford Institute of Technology (WIT) and Part-time Farmer and Forester

Kieran is a part-time farmer and forester from Co. Waterford. He and his brother manage 13 hectares of alder and Sitka Spruce, as well as running a small sheep enterprise on their farm. Kieran works off-farm as an IT researcher with Waterford Institute of Technology, where his interests include data analytics and ICT-AGRI. He has worked on EU research projects since 2008. Kieran also writes a column for the Irish Farmers Journal.
Twitter: @kieran_sullivan

EIP-AGRI Guest Blog Author Profiles

Mike Brady, Managing Director of Brady Group Agricultural Consultants and Land Agents

Mike is a well-established agricultural consultant and land agent, providing advice to farmers located throughout the Republic of Ireland. He qualified from UCD in 1987 with a BAgrSc(Hons) and commenced his career as a Dairy Husbandry Advisor with the then Ministry of Agriculture Fisheries and Food in the UK. Mike returned to Ireland in 1989 to work with a private firm and left to established Brady Group in 1995. He completed a Nuffield Scholarship in 2004, where he studied advisory services in France, Australia and New Zealand. Mike is also a past President of the Agricultural Consultants Association of Ireland.
Twitter: @BradyGroupAgri

Ethan Cleary, Technology and Innovation Executive, Irish Farmers' Association (IFA)

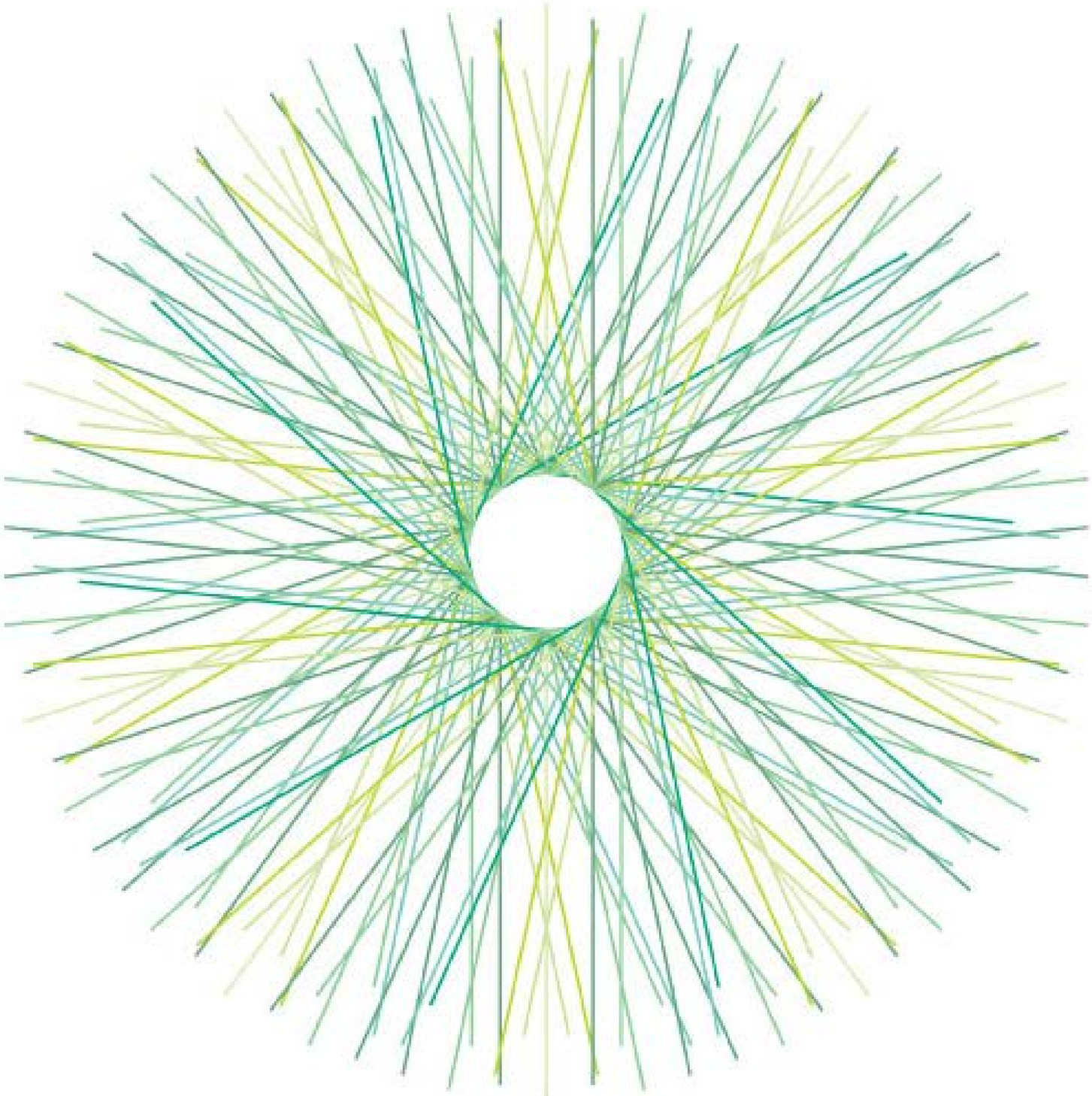
Ethan comes from a 5th generation tillage farm and is passionate about connecting agriculture with technology that benefits and supports farmers. He has worked as a developer, designer, product manager, technology consultant and strategist for over 15 years across a range of industries, from large multinationals and the public sector to early stage start-ups. His current focus is driving the innovation and digital agenda for Irish farmers at national and EU level with the Irish Farmers' Association.
Twitter: @ethancleary

Dr Nuala Ní Fhlatharta, Head of the Teagasc Forestry Development Department

Dr Ní Fhlatharta is Head of the Teagasc Forestry Development Department. She is based in Athenry, Co. Galway. She has a degree in forestry from UCD and subsequently she went on to do a PhD on forest biomass and a Masters in Rural Development with NUIG. She has a keen interest in supporting the achievement of the potential that forests offer here in Ireland. She feels that the appropriate development of new and existing forests can contribute significantly to our environment and economy and can also provide a great recreational resource for rural communities and visitors.
Twitter: @teagascforestry

National Rural Network

NRN EIP-AGRI Guest Blogs 2020



eip-agri

AGRICULTURE & INNOVATION

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

The European Agricultural Fund for Rural Development:
Europe investing in rural areas

NUI Galway
OÉ Gaillimh

Reimagining Rural Futures

Dr Brendan Dunford, Manager of the Burren Programme

In this guest blog, Dr Brendan Dunford, Manager of the Burren Programme, explains that the role of the farmer is much more than just a 'food producer', but also one that deliveries a number of agri-environmental public goods as well as heritage conservation. He also provides us with interesting insight into the Burren Programme, and the successful journey it has taken to date in helping to ensure the sustainability, viability and vibrancy of the Burren's farming community. Dr Dunford also commends the emergence of EIP-AGRI projects across Ireland, particularly their farmer-centred, results-based approach and the manner in which they are fittingly bespoke to the needs of their local area.

I often reflect on how privileged I am to have lived and worked here in the Burren over the past two decades. Privileged, not just because the Burren is a place of such beguiling beauty and deep intrigue, but because I have been here at a time which somehow seems significant in the Burren's long history, a time when the humble role of 'the farmer' has been reframed from that of 'food producer' to encompass other significant roles such as environmental steward, heritage custodian, citizen scientist and teacher.

Early on in our Burren 'journey', the importance of the farming community in sustaining the biodiversity, archaeology and landscape of the Burren became apparent. As owners and managers of the land and livestock, as heirs to generations of practical, local farming knowledge, as a community with deep loyalty to their place, farmers, uniquely, have the potential to meet the management needs of this special place. While this may seem like an obvious conclusion, poorly-designed (albeit generally well-intentioned) policy, advice and funding mechanisms served instead to undermine this stewardship role, a sorry situation which unfortunately remains the rule in many protected landscapes across the world today. That the latent stewardship potential of the Burren's farming community is gradually being unlocked is down to a combination of factors– strong local leadership enabling constructive local partnerships, farmer-centered supports (to enable farm-level innovation and accommodate field-level complexity) and a local advisory resource to help farmers navigate the daunting bureaucratic burden of farming in a protected landscape, for example. The most gratifying aspects of this work are to witness the strong working partnership that continues to flourish among one-time opponents, to walk the land and see improvements in habitat management and farm infrastructure, to see local farmers proudly, publicly proclaim the nature and significance of their work in sustaining their unique heritage.

Reimagining Rural Futures

Dr Brendan Dunford, Manager of the Burren Programme

More recently, the emergence of EIP AGRI projects across Ireland – each one fittingly bespoke to the needs of their local area – has given us all cause for renewed hope. For too often the Burren Programme was considered an overly complex, expensive, bespoke solution which couldn't work elsewhere. It is now clear however that fundamental principles of partnership, local adaptation, rewarding results and taking a more farmer-centred approach to heritage conservation can indeed work, efficiently and effectively, elsewhere. We are now at the happy stage of not just sharing our Burren story with others, but learning from others about, for example, applying new technology in the field, developing scoring cards for different habitats, creating new opportunities for local employment.

While much progress has been achieved, in truth, the journey has just begun. During the next CAP cycle we will need to see the learnings from the Burren Programme and EIP-AGRI Projects integrated more deeply into policy – through new GLAS options for example, or by scaling the impact of the projects through a dedicated higher-level, results-based payments programme for high nature value (HNV) farmland. At a time of several crises – in biodiversity, climate and farm income - we must be ambitions and bold in harvesting lessons from these Projects and applying them more widely, to build a better future, one that will nourish and revitalise our rural communities and landscapes.

Maximising Organic Production Systems (MOPS) - Meeting the Growing Demand for Organic Fruit and Vegetables in Ireland

Gillian Westbrook, MOPS EIP-AGRI Project Manager and CEO of the Irish Organic Association (IOA)

In this guest blog, Gillian Westbrook, Maximising Organic Production Systems (MOPS) EIP-AGRI Project Manager and CEO of the Irish Organic Association (IOA) whom are the lead partner of the project, provides us with an informative overview of the origins of this three-year project and its role in developing efficiencies at farm level to supply a growing demand for organic fruit and vegetables in Ireland. Gillian also outlines some of the insights and lessons learned from this innovative project to date.

MOPS as a project concept took fruition when a group of our farmers contacted the Irish Organic Association with concerns about the capacity of their individual businesses to meet the market demand for organic horticultural products. For our Company, this was a key reason to engage with the EIP-AGRI initiative being launched in Ireland. I spoke with the organic growers, researchers and agronomists to see how this issue could be resolved and an EIP-AGRI Operational Group (OG) was formed. MOPS is very much a market focused project, which seeks to improve farm sustainability by improving farm performance and efficiencies to meet an increased demand for local organic horticulture.

The project involves 11 certified organic horticulture farms around Ireland, of varying sizes and cropping capacity, all of whom are on the OG. These farms are owner operated and collectively they supply a range of markets including; direct sales (online and farmers markets), wholesale markets, speciality shops, restaurants, private procurement outlets, and supermarket/retail multiples. While all farms produce a year-round supply of crops, they also import organic produce to supplement what is grown on farm.

MAXIMIZING ORGANIC PRODUCTION SYSTEMS

A core component of improving farm efficiencies and performance is the design of an annual cropping plan, supported by robust agronomical advice specific to each farm. Farm data mainly consists of recording and monitoring of crop performance coupled with soil, compost and plant tissue analysis, soil temperature and relative humidity readings, crop yields and sales. Farm data, market demand and farm capacity determine the individual cropping plan. A combination of collected data from each farm is subsequently complied onto Gatekeeper software, this allows for performance cross comparisons of the project farms specific to each crop.

Maximising Organic Production Systems (MOPS) - Meeting the Growing Demand for Organic Fruit and Vegetables in Ireland

Gillian Westbrook, MOPS EIP-AGRI Project Manager and CEO of the Irish Organic Association (IOA)

The need to keep accurate farm records is possibly the most salient lesson from this project to date. It's vital that farmers know the profitability of each crop, including which variety performs best and under what conditions. If a farmer can not determine crop specific production costs, they can not place a true value for the crop. Profitably will vary on each farm depending on various factors, including but not limited to; machinery, skill set and labour costs. Understanding the real costs helps the farmer become more competitive, improves farm efficiencies and furnishes the farmer with sufficient knowledge to make an informed decision about which crop, market and supply route to choose. To date, two years into the project, we have seen farms change their crop choice when they realise the true production costs, some significantly reducing the range of crops grown and/or opting for more profitable crops, while others choosing to purchase from another project grower because it's more economically efficient.

Its common practice for large retailers to prescribe product specifications, for example the length of carrots, weight of a head of broccoli. If a product doesn't meet the specification, the grower can potentially end up with considerable waste. Waste is obviously undesirable, both environmentally and economically. Although the large retailer can take considerable volume, and suits field scale production, waste awareness and the impact on farm profitability has resulted in some of the project farms returning to direct sales. Many of the growers would have started with a box scheme business and/or farmers market and the trend is to return part or all of their business model to direct sales.

The MOPS project incorporates a Green Manure Trial taking place in Co. Wexford on one of the participating farms. The aim of the trial is to quantify the effects of different green manure varieties on identified parameters such as soil organic matter and nutrient content, weed control and beneficial insects. The trial is producing some interesting results illustrating the benefits, environmentally and economically, of using green manure crops. Crop agronomy is discussed and recorded in a series of MOPS technical videos, hosted on the webpage of the Irish Organic Association and promoted on social media. The videos have been hugely successful, with interest coming from organic and conventional farmers across the EU and the USA.

With organic farming constituting 2.4% of utilisable agricultural land in Ireland, organic horticulture is a small sector however, sales of fruit and vegetables make up 34% of the organic retail market (supermarkets). This is mirrored in retail data from other countries as horticulture is one of the strongest performing categories in global organic food sales. Local organic horticulture however, has always performed well and remains in much demand, be it in direct sales or supplied through retail routes. It is clear that Irish organic horticulture has huge potential to expand, even with increased production there remains a major deficit in supply. Improving short supply chains in the organic sector is something that can be replicated in other regions to achieve sustainable economic growth and development. The key is to work together to identify best practice, establish the real production cost of each crop, determine farm capacity, have different routes to market, share information and plan for some challenging and unpredictable weather conditions.

Biorefinery Glas – Bringing the Bioeconomy to Irish Farms

James Gaffey, Co-Director of the Circular Bioeconomy Research Group (CIRCBIO) at Shannon ABC in IT Tralee and Coordinator of the Biorefinery Glas EIP-AGRI Project

In this guest blog, James Gaffey, Co-Director of the Circular Bioeconomy Research Group (CIRCBIO) at Shannon ABC in IT Tralee and Coordinator of the Biorefinery Glas, small-scale grass biorefinery demonstration EIP-AGRI project provides us with an insightful overview of the bioeconomy, and its potential in terms of Ireland's future economic and environmental wellbeing. He also explains how the Biorefinery Glas project is trying to understand and demonstrate how we can sustainably add value to Ireland's most abundant resource, grass, through the new lens of the bioeconomy.

"Bioeconomy" has become a bit of a buzz word in recent times. It refers to the knowledge-based production and use of biological resources to provide products, processes and services in all economic sectors within the frame of a sustainable economic system. These biological resources, which form the building blocks of the bioeconomy are largely derived from our agriculture, forestry and marine sectors. They can be crop waste, vegetable waste, brash or seaweed, all coming with very distinct compositions and different potential for developing new biobased products. In the bioeconomy, seaweed, for example, can be converted into healthy nutritional products, cosmetics and energy, while forestry waste can be transformed into transport fuels and high value chemicals.

Through the EIP-AGRI Biorefinery Glas project, IT Tralee together with our partners UCD, GRASSA, Carbery and Barryroe have been exploring one of Ireland's oldest resources, grass, through the new lens of the bioeconomy, to understand how we can sustainably add value to Ireland's most abundant resource. Through this lens, grass can be a source of protein or amino acids, sugars (mono-, di-, poly- and oligosacchardies), fibres, organic acids, lipids and minerals, providing Ireland with a vast reservoir of potential. Through Biorefinery Glas, we have been demonstrating how a small-scale mobile biorefinery (essentially a factory for producing products and energy from biomass) can convert grass into

different product streams for use in many different applications. In the first step, grass is pressed and crushed to separate some of the protein, minerals and sugars into a liquid, while part of the protein and nutrients remain bound to the grass fibres. We have been conducting feed trials with dairy cows at UCD's Lyons Farm, and while this fibre is much lower in protein content compared with silage, there is essentially no difference in the volume and quality of milk produced. Overall a much higher proportion of the protein from the biorefinery fibre, ends up in the milk, with a much lower amount ending in excrement, compared with silage. This development can have a position impact on nitrogen related livestock emissions such as ammonia and nitrous oxide.

Biorefinery Glas – Bringing the Bioeconomy to Irish Farms

James Gaffey, Co-Director of the Circular Bioeconomy Research Group (CIRCBIO) at Shannon ABC in IT Tralee and Coordinator of the Biorefinery Glas EIP-AGRI Project

In addition, some preliminary results from our study shows that this feed may also be able to reduce rumen methane emissions by as much as 15%. With our fibre performing on a par with silage, it allows us to explore the potential of other additional valuable co-products we can extract from grass. In this regard we have been working to isolate and concentrate the remaining protein within our extracted grass liquid to develop a protein concentrate which is similar in composition to soybean meal, and this is currently being trialled as pig feed through the Barryroe Co-op.

Currently Ireland's compound feed industry is heavily dependent on imported protein concentrates like soy which usually have a large carbon footprint and is, in some cases, linked with deforestation and biodiversity loss. Being able to use our Irish grassland more efficiently so that we can produce our own concentrates will make our livestock sector more sustainable and more resilient. Aside from better utilisation of protein, we also adapt the biorefinery approach to extract and purify high value compounds contained within the residual grass biorefinery stream. In our case, fructo-oligosaccharides, a prebiotic, which can help to enhance the growth of good bacteria in human and animal guts, are present in grass in relatively high volumes, and at Institute of Technology Tralee, we have been extracting and comparing these to on-the-market prebiotics, with very positive results.

Meanwhile adopting a circular and zero-waste approach we are evaluating the final liquid stream, the whey, as a nutrient-rich fertiliser which Carbery farmers have tested in field trials to good effect, and as a substrate for biogas production through anerobic digestion. Overall, the results of the product trials have been successful, and we are currently finalizing the economic analysis to understand the viability of the model in the current commercial environment. A major strength of our project is that it has enabled farmers, researchers and industry to work together to demonstrate this innovation. There has been a sharing of knowledge, not only from researchers to the farmers, but also from farmers to the researchers, where their practical knowledge of farm management, allows us to better understand the logistics and challenges of technology introduction. It has also shown, possibly for the first time, that a small-scale biorefinery can be implemented technically on farms, at small-scale with the participation of the farmers.

The EIP-AGRI Initiative, with its focus on bottom-up research has made this possible, and the Department of Agriculture, Food and the Marine (DAFM) has backed the project financially, clearly demonstrating their belief that the bioeconomy will shape the future of agriculture in Ireland. This support is also evident from the inclusion of the project within the Departments AgClimatise Roadmap document for decarbonizing the agri sector, a view shared by KPMG who highlighted the project within its 2020 agribusiness report focused on decarbonization of agriculture by 2050. Overall, it has been a great initiative to be a part of, and we look forward to our upcoming release of project results in early 2021. Overall the EIP-Agri experience has been a positive one for all those involved, and I would like to give special thanks to everyone who has made this project possible, in particular our participating farmers of the Carbery and Barryroe Co-ops, without whom this journey would not have been possible.

Agriculture and Rural Economies in a Digitally Enabled Era

Peadar Casey, Innovation and Enterprise Development Manager at Institute of Technology Carlow

In this guest blog, Peadar Casey, Innovation and Enterprise Development Manager at Institute of Technology Carlow (IT Carlow), provides us with an informative insight into his participation at a number of initiatives run by the EIP-AGRI Service Point since 2015 exploring the role of information technology within farming and rural economic development, with a particular focus on the development of a smart and sustainable digital future for agriculture and rural areas throughout Europe.

Digital technologies in agriculture not only help European farmers to 'produce more with less', thus contributing to their livelihoods, they also address the wider sustainability challenges lying ahead for the agri-food sector, as well helping to combat climate change.

I have been involved with numerous initiatives run by the EIP-AGRI Survive Point since 2015 exploring the role of information technology within farming and rural economic development, with a particular focus on the development of a smart and sustainable digital future for agriculture and rural areas. The structure and content of these EIP-AGRI seminars, workshops and conferences have been stimulating and insightful, providing participants with a range of opinions and observations from within the EU and beyond. The picture that has emerged over the past five years is that technology has three core purposes within agriculture:

a) The safety aspects focus on the physical and mental wellbeing of farmers, rural citizens and visitors to the rural environment.

b) The efficiency factors are across economic, environmental and social capital.

c) There is a growing trend in using technology to connect farmers and their environment, with curious consumers, who want to understand where their food comes from and how they can play a part as a conscientious consumer.

The appropriate use of digital technology will assist farming and associated activities to make sensible decisions to sustain agriculture and rural social, environmental and economic ecosystems. I use a three-step model in evaluating and managing the innovation process. The model filters opportunities through phases of: (a) what is possible to (b) what is probable and finally (c) what is profitable.

While using this process with agriculture and rural focused initiative there is a growing trend that the most suitable projects are driven by individuals from within the industry and an understanding of the rural economy. The product / service is usually built in a customisable format and serves a practical purpose which delivers clear value to the farmer / consumer and wider ecosystem. These facts are applicable to any industry but particularly applicable to farming and rural development, where margins are small and there is little room for speculative purchases.

Agriculture and Rural Economies in a Digitally Enabled Era

Peadar Casey, Innovation and Enterprise Development Manager at Institute of Technology Carlow

An EIP-AGRI Service Point seminar entitled 'New Skills for Digital Farming' was held in in Aranjuez, Spain from the 5th to 6th of February 2020. The seminar aimed to contribute to the design and implementation of approaches and tools that can help farmers and farm advisers develop the skills they need in the face of the digital transition in agriculture. There was healthy debate and demonstration of digitally enabled initiatives at this event, all of which was focused on how information technology can enhance the agriculture, rural economic and extended supply chain. The key 'take away' messages from the seminar were as follows:

(a) Rural economies are hot spots for innovative ideas, and ambition.

(b) Skills development is important but sensible development of ideas is more important.

(c) Collaboration is the key to bringing an idea from a spreadsheet to a saleable product or service

(d) Rural based innovation extends beyond agriculture and rural activities, the idea of innovating from anywhere to anywhere is now possible.

Since this seminar in Spain, there has been an unexpected increased focus on rural based economies as places to centre innovation and entrepreneurial activity upon coming from the Covid-19 crisis. The utilisation of space and social distancing is less of an issue in rural environments than it is in urban areas. Furthermore, many of the skills and interests needed to develop innovative ideas already exist within rural communities. As we manage through a time of uncertainty, the opportunity for rural economies to become places to base technology development initiatives, is an exciting new opportunity for rural communities throughout Europe. Digital skills, interests and infrastructure are now primed to combine natural assets, social capital and sensible investment to stimulate vibrant rural entrepreneurial ecosystems.

Should Farmers Score their Own Fields in Results Based Programmes?

Dr Amanda Browne, Scientific and Technical Officer of the Caomhnú Árann EIP-AGRI Project

In this guest blog, Dr Amanda Browne, Scientific and Technical Officer of the Caomhnú Árann EIP-AGRI Project, outlines the field scoring system developed for the Aran Islands (but applicable elsewhere), where farmer self-assessment is the end goal thereby reducing administration costs and training farmers to identify grasslands of high conservation value, and rewarding them for conserving and maintaining them.

If a transition to results based schemes is to be successful, then farmer self-assessment is the next logical step to farmer buy in, while at the same time improving farmers' knowledge and reducing administration costs.

Most results-based projects have a scoring system, which in large projects is generally assessed by trained farm advisors and the data gathered submitted back to the projects hub for checking. What if the scoring system was assessed by the landowners themselves, giving them a hands-on insight into the product that they are trying to achieve, where higher quality habitats are rewarded with higher payments? Who knows the land better than the farmers themselves? A visit from a farm advisor in May could produce a different score to a visit in September, while a farmer knows that even though the field has just been grazed in September and does not look particularly species-rich, it was full of orchids and other positive indicator species in July and warrants a high score.

Farmer self-assessment is one of the end goals and innovative elements that the Caomhnú Árann EIP-AGRI Project is striving for with its 125 participating farmers on the three Aran Islands. It is facilitated by having a simple 5-point scoring system based on positive indicator species, which allows the vegetation to be put into a broader base of bands and leaves little room for scoring errors. In this scoring system, a score 5 represents species-rich grasslands and score 2 is indicative of semi-improved species-poor grassland. This scoring system was developed for grasslands on the Aran Islands but could work equally well in other locations where there is a continuum of grassland quality from intensively managed to species rich.

Given the logistics of the islands, there are no locally based farm advisors available and the Caomhnú Árann 3-person team scores the land and processes the resulting scores in to results based payment, however, with increasing farmer participation the administration cost, processing 100% of the land parcels of participant farmers is both untenable and unnecessary.

Should Farmers Score their Own Fields in Results Based Programmes?

Dr Amanda Browne, Scientific and Technical Officer of the Caomhnú Árann EIP-AGRI Project

Before the Covid-19 pandemic, a series of farmer training days were planned to familiarise farmers with the scoring system, the indicator species and the issues that may reduce a land parcel from a score 5 to a score 4, and the actions necessary to improve the score 3 field. With the resulting travel restrictions from March to July 2020, farmer training workshops were not possible, and adaptations had to be made. A scoring leaflet (Fig. 1) and video were subsequently designed in-house by the project team, to encompass the main differences between the scores.

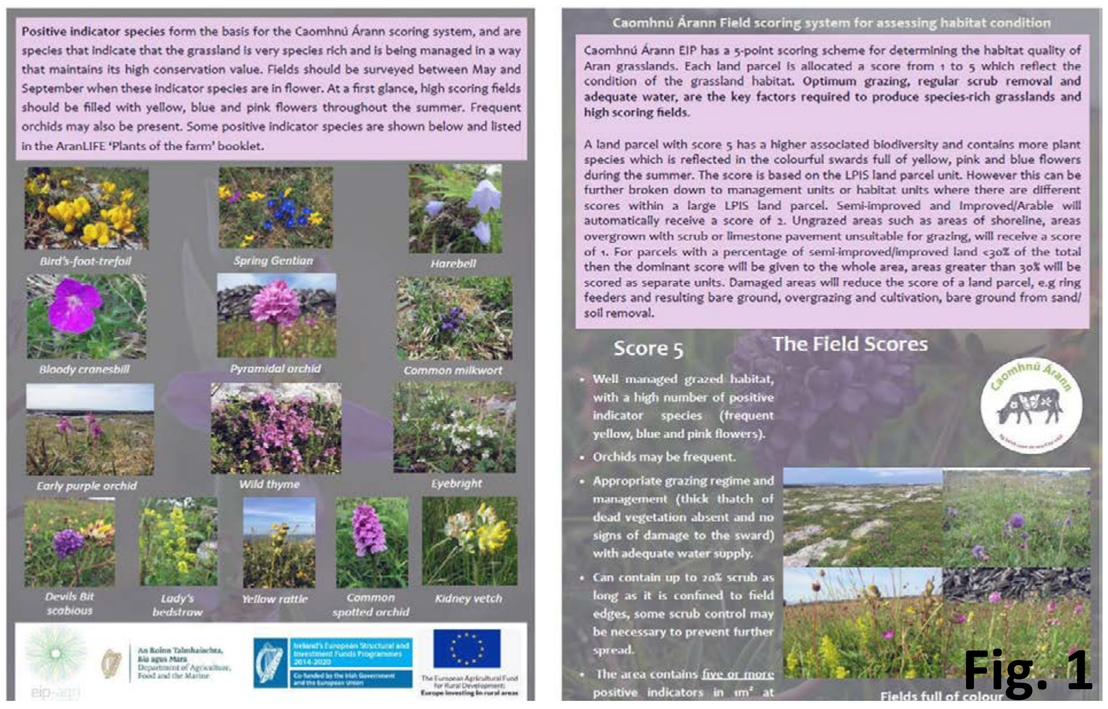


Fig. 1

Twenty-five Caomhnú Árann farmers were selected at random and asked to score their own fields using just the booklet and video guides as reference. These 25 farms were also scored by the project team in August and September 2020. To date the results have been favourable with significant correlation between the farmer scores and the Caomhnú Árann project team score and this success will be built upon in the coming months with further farmer training planned. Over the next 12 months Caomhnú Árann will work with farmers to further develop the scoring systems so it best reflects the different grassland types.

Fig. 2

Fig. 3

On the islands, farmers have built up a lifetime of knowledge and expertise in their farming enterprise. There is a pride in producing quality and Aran farmers have a particular pride in their farm and the cattle that they produce, as the land that they are farming today was 'made' by their parents or grandparents. There is a strong sense of responsibility amongst Aran farmers in maintaining and conserving the land in as good a condition as it was in their parents or grandparent's day. The legacy of the Caomhnú Árann Project can be the knowledge and pride farmer take in producing 5* cattle (Fig. 2) as well as 5* habitats (Fig. 3).

Pearl Mussel Project - 'More than it says on the tin'

Dr Derek McLoughlin, Project Manager at Wild Atlantic Nature LIFE IP

In this guest blog, Dr Derek McLoughlin, Project Manager at Wild Atlantic Nature LIFE IP and former Assistant Project Manager of the Pearl Mussel Project EIP-AGRI Operational Group provides us with a unique insight into the origins and ethos of this innovative pilot agri-environment programme seeking to improve the quality of watercourses to benefit the endangered freshwater pearl mussel. Derek also highlights the importance of the project's locally adapted, results-based approach in engaging and rewarding farmers participating in the Pearl Mussel project.

The lights of our jeep briefly lit the dark silver streaked November night sky as we inched forward on the windy Ballaghbeama road between the Caragh and Blackwater catchments in south Kerry. Occasional vertical hues of grey /white mountain streams in full flow caught our eye, usually associated with a quick rise, and fall of our stomach as we crossed another bridge. The wind shook us, and the rain pelted the windscreen so hard it was difficult to know if we were even still on the road! It crossed my mind that this catchment holds the highest rainfall record in Ireland, set at 3,943mm in 1960. That is almost 4 metres in a single year!

Do we have everything we need, questionnaire sheets, projector, laptop, memory stick, pens, spare reading glasses? At this speed are we going to be late for the meeting? The contrast on our arrival at the local community centre could not have been greater. The seats quickly filled with many of the farmers of the catchment and members of the public keen to hear what the Pearl Mussel Project is all about.

Over the following two months we meet over 400 farmers across the top 8 Freshwater Pearl Mussel catchments in counties Cork, Kerry, Galway, Mayo and Donegal. These meetings were an essential part of the development of the Pearl Mussel Project (PMP) EIP-AGRI Operational Group. We were provided with clear and frank insights into the challenges and opportunities of farming these catchments.

For an agri-environment scheme to be successful it should be fair, practical, and understandable to the farmer, whilst capturing the ecological requirements of the target, in our case Freshwater Pearl Mussel. It must also consider its long-term goals in terms of changing attitudes towards valuing biodiversity and other eco-system services. The results-based approach adopted by the PMP fitted these criteria perfectly.

Pearl Mussel Project - 'More than it says on the tin'

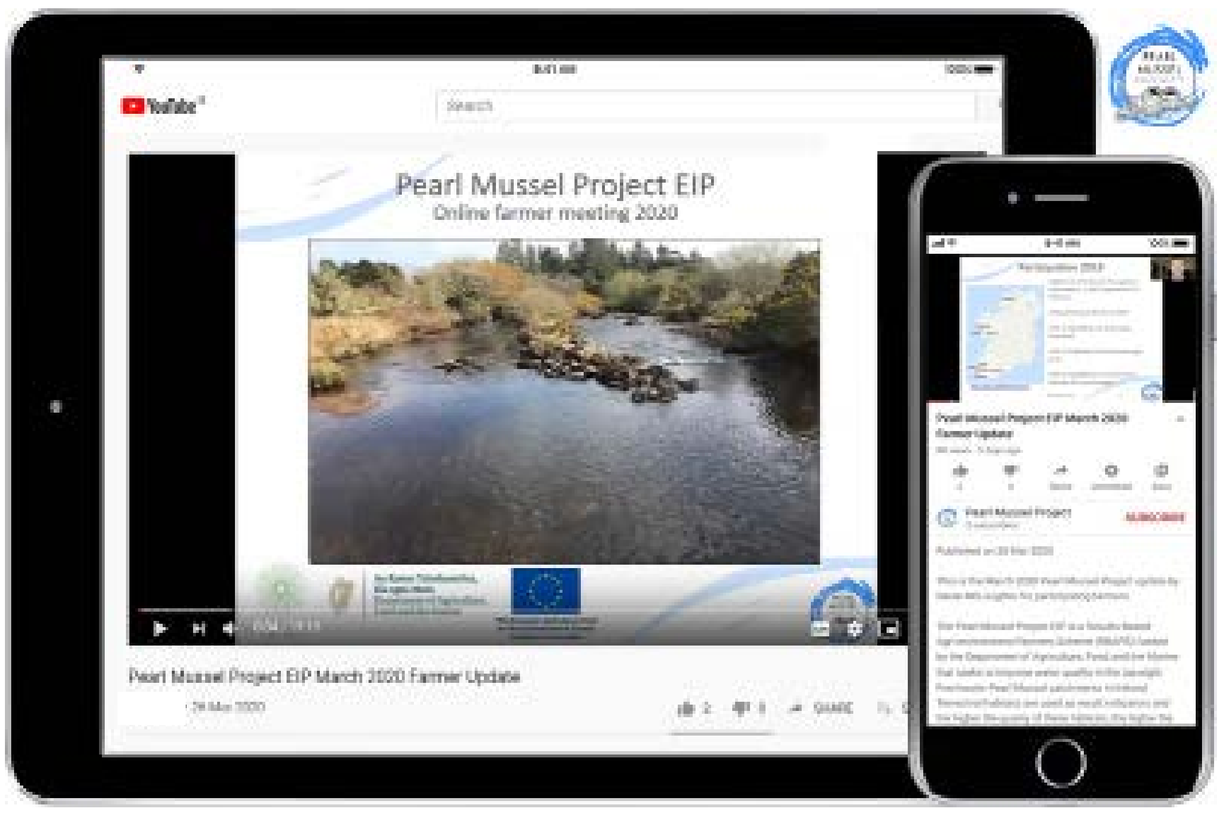
Dr Derek McLoughlin, Project Manager at Wild Atlantic Nature LIFE IP

Farmland habitats are used as result indicators and the higher the quality of these habitats (scored out of 10), the higher the payments farmers receive. This approach has the effect of creating a market for biodiversity and provides an opportunity and incentive for farmers to manage their habitats to a higher quality. Although payments are for results achieved, supporting actions, such as the provision of drinking troughs, drain-blocking, and stock management, are financed through the programme to assist farmer achieve higher scores.

The focus of the Pearl Mussel Project is on reward for ecosystem services, rather than restriction and penalty. One farmer at of meetings remarked 'it's the first time we have been told what we can do with our land rather than what we can't do'.

The Pearl Mussel Project is lucky to have an excellent team with a strong interest in farming, people, and the environment. The team, together with its farmers and advisory groups, has created an exciting template for how future agri-environment schemes can operate to deliver a broad range of ecosystem services from biodiversity, to clean water and carbon storage.

The project's focus is on protecting the rare and endangered Freshwater Pearl Mussel that depends on the wetness and pristine water of these high-rainfall catchments. But with many other services being delivered, there's 'more than it says on the tin'!



EIP-AGRI Operational Groups: An Innovative Option to Support Hill Farmers for Biodiversity Conservation in the Irish Uplands

Verena Berard, PhD Connacht Ulster Alliance Scholarship Postgraduate at IT Sligo and GMIT

In this guest blog, Verena Berard PhD Connacht Ulster Alliance (CUA) scholarship postgraduate at IT Sligo and GMIT, provides us with an overview of her ongoing PhD research, analysing hill farmers attitudes and local environmental knowledge towards agri-environmental schemes in Ireland. This ongoing PhD research will provide a comparative analysis of the 'top-down' agri-environmental scheme, known as GLAS and the 'bottom-up' approach to results-based agri-environmental schemes. The case study areas are located in the Connemara uplands (Co. Galway) and Slieve Aughty Mountains (Co. Galway and Co. Clare), where the Pearl Mussel and Hen Harrier Project EIP-AGRI have recently commenced. In relation to these projects, Verena will also give her thoughts and opinions on the EIP-AGRI initiative.

Recent research by leading experts in the field of agro-ecology and sustainable agriculture have estimated that approximately 34% of Ireland's farmland can be classified as very high likelihood of being High Nature Value farmland (HNVf) (Matin, et al., 2020). These areas have the potential to provide important semi-natural habitats, biodiversity and deliver essential ecosystem services, including water quality, flood mitigation, carbon sequestration, pollination but also cultural and natural heritage. About 54% of this High Nature Value farmland can be found in Irelands' upland areas (Matin, et al., 2020).

The preservation of the Irish uplands depends on traditional low-intensity hill farming practices, where hill farmers rely on suitable agri-environmental subsides, to sustain their livelihoods. However, these mountainous regions are known for their challenging environmental conditions and vulnerability in relation to climate change. These upland areas have also been influenced by productivist agri-policies (e.g. Ewe Premium & Headage payments), which in many areas lead to severe historical overgrazing, resulting in lasting adverse effects on the environment and diverse set of challenges for rural communities living in these areas.

As part of the research for the ongoing PhD research, I spent about three years assessing hill farmers' attitudes and local environmental knowledge in relation to the implementation of agri-environmental schemes, focusing on the top-down Green Low-carbon Agri-environment Scheme (GLAS). GLAS is Ireland's most recent agri-environmental policy, which is a voluntary scheme based on a top-down and action-based incentive, paying farmers to undertake environmentally friendly farming practices. However, academic research indicates that financial motivations alone are often insufficient to increase farmers' willingness to adopt environmentally sustainable farming practices (Wilson & Hart, 2001; Sulemana & James, 2014; Forney, 2016). I, therefore, asked myself the question how can agri-environmental schemes influence hill farmers to participate in long-term pro-environmental behaviour, and what are some of the potential motivations or barriers for the adoption of sustainable farming practices?

Using a mixed-method approach, the scientific basis of this research depends on Q methodology, which has recently gained prominence in geographical research especially in relation to understanding to environmental policy implementation.

EIP-AGRI Operational Groups: An Innovative Option to Support Hill Farmers for Biodiversity Conservation in the Irish Uplands

Verena Berard, PhD Connacht Ulster Alliance Scholarship Postgraduate at IT Sligo and GMIT

The aim of the ongoing research is to critically examine how agri-environmental schemes (AES) may influence hill farmers' local environmental knowledge on upland management. This will provide a comparative analysis of GLAS and results-based agri-environmental schemes and their influence on hill farmers' local environmental knowledge on their upland management practices. Furthermore, the study aims to analyse how and whether these schemes support hill farmers adoption of more sustainable farming regimes in the two case studies areas. These are in the Connemara uplands, where hill farmers are participating in the GLAS Commonage Management Plan, and the Slieve Augthy Mountains, Special Protection Area (SPA), where farmers participate in the GLAS Hen Harrier option.

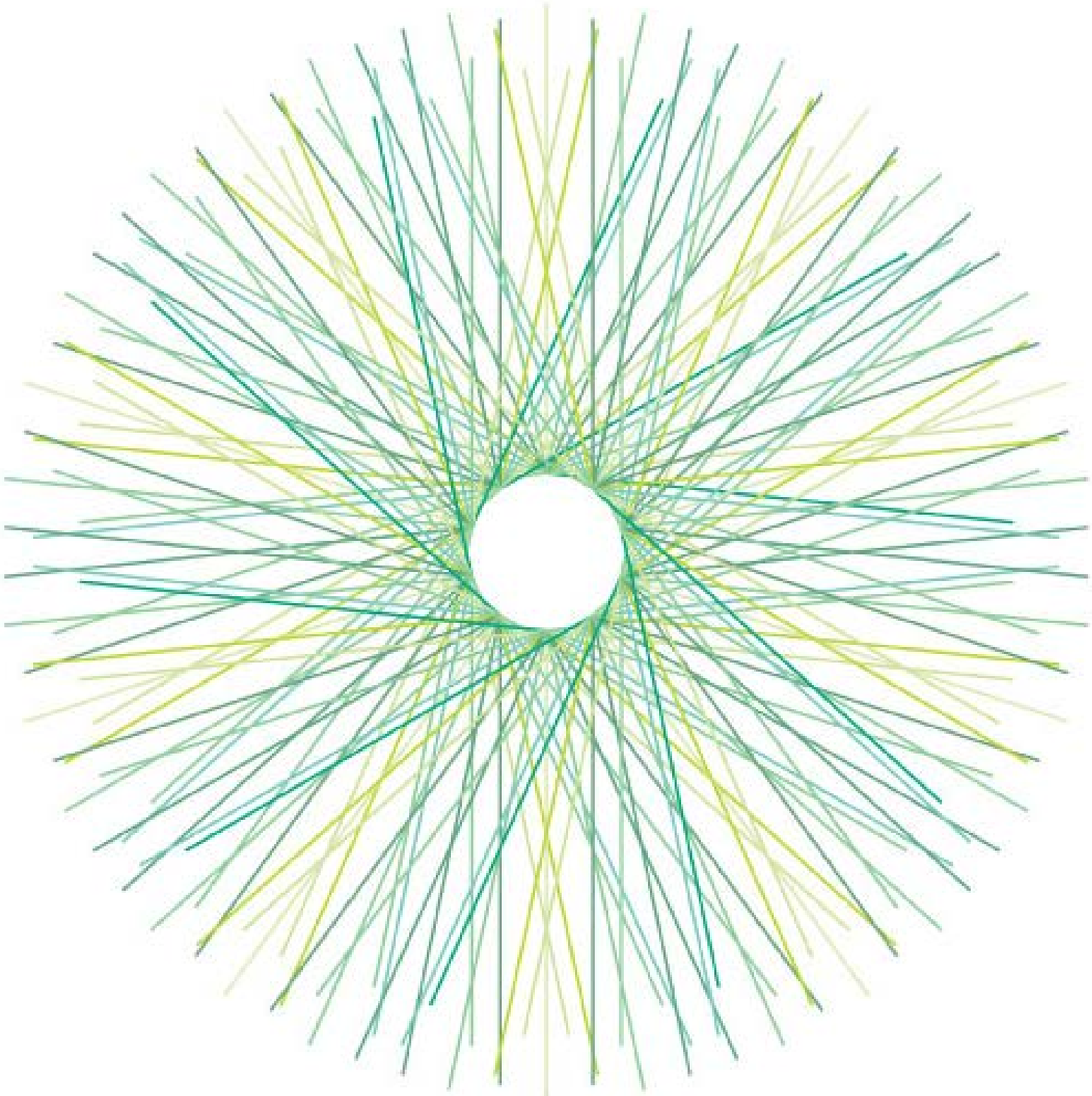
The alternative to the 'top-down' approach of GLAS, are locally-led EIP-AGRI Operational Groups which postulate a 'bottom-up' and result-based approach to agri-environmental policy implementation. At the beginning of this research back in 2018, within the Connemara region there were no EIP-AGRI or results-based agri-environmental schemes available to farmers, however in the Slieve Aughty Mountains the implementation of the Hen Harrier scheme had commenced in 2017. Therefore, some of the hill farmers interviewed as part of this research had first-hand experience of the Hen Harrier Project EIP-AGRI.

Today, in Ireland, there are 23 European Innovation Partnerships (EIP-AGRI), which are funded and implemented under the Rural Development Programme (RDP). Across the EU the implementation of EIP-AGRI operational groups seeks to bring together a diverse range of partners (e.g. local farmers, farm advisors, scientists, and relevant stakeholders) to develop innovative solutions to a wide range of challenges facing agriculture. EIP-AGRI operational groups offer flexibility and locally-led approach to agri-environmental schemes.

Assessing the complexity of issues and above-mentioned challenges hill farmers are facing in the Irish uplands, it has become clear that innovative and more flexible approaches to agri-environmental policy implementation are needed. There are some indications that EIP-AGRI Operational Groups may offer novel and innovative options, which might be implemented in a more effective and inclusive manner, and are therefore worthy of further research. In this regard, EIP-AGRI Operational Groups offer the opportunity for farmers to collaborate with the experts and scientists, potentially leading to valuable local solutions to upland management and biodiversity conservation. Today this gives hope for a better future within the Connemara region, where two new EIP-AGRI Operational Groups have commenced recently. These EIP-AGRI Operational Groups include the North-Connemara Locally Led scheme and the Pearl Mussel Project. The implementation of the latter together with the Hen Harrier Project (EIP-AGRI) will provide the focus for the research under the ongoing PhD.

National Rural Network

NRN EIP-AGRI Guest Blogs 2019



eip-agri

AGRICULTURE & INNOVATION

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

The European Agricultural Fund for Rural Development:
Europe investing in rural areas

NUI Galway
OÉ Gaillimh

OviData EIP-AGRI Project for Sheep Genetic Improvement – 'An Ounce of Breeding is worth a Tonne of Feeding'

Eamon Wall, OviData EIP-AGRI Project Leader

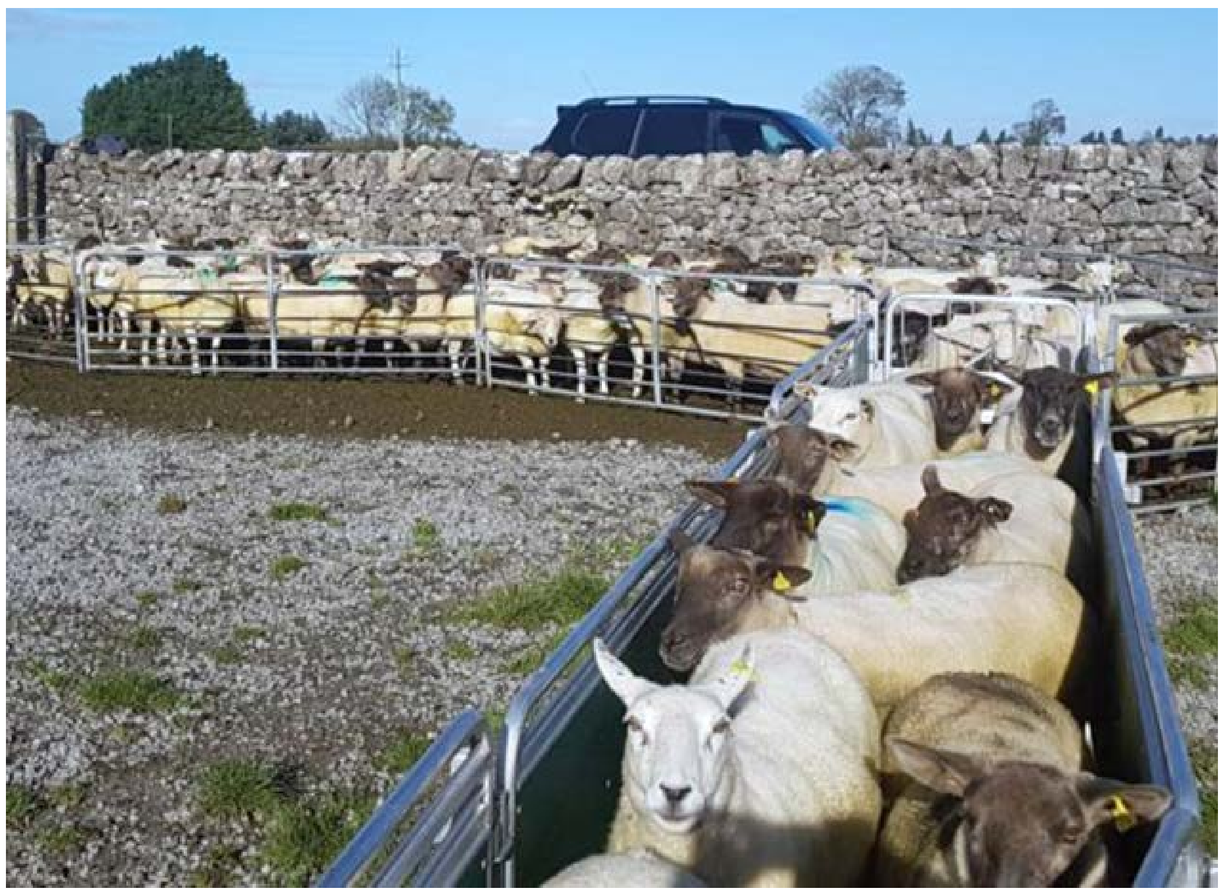
In this guest blog, Eamon Wall, OviData EIP-Agri roject leader, former lead of Irelands sheep breed improvement programme run by Sheep Ireland and part-time farmer, provides us with a comprehensive overview of the OviData project's role in helping to propel the Irish commercial sheep breeding to the next level and its progress to date. Eamon also details his thoughts and opinions on the importance of genetic improvement in increasing efficiency and profitability on sheep farms through performance recording.

Improvements in breeding or genetics is one of the most powerful tools available to any farmer involved in animal production. Many variables can affect such enterprises each year, weather, price volatility, input costs, etc, but if a farm has invested in better genetics they will always reap the benefits of this, in good times or in bad. Once delivered, genetic improvement will remain forever and can be built on further in following years.

Farmers can benefit from genetic improvement without even knowing about it – by buying a ram from a ram breeder actively engaged in genetic improvement, a farmer will bring better genetics into their flock whether they were looking to do so or not.

'An ounce of breeding is worth a tonne of feeding' is an adage often used by farmers interested in animal breeding. Its true! Genetic improvement sounds scary to many sheep farmers, its actually something farmers have done for generations without even knowing it. Each time a sheep farmer selects a breeding ram to purchase, or a female to retain as a breeding animal, there are reasons behind these selection decisions. For most it's the look of the animal, its size, length, etc. Selecting on these visual traits will in turn, promote these traits – so in time the farmers sheep will eventually get bigger and longer. Unfortunately, the traits which are most influential in terms of increasing efficiency and profitability on sheep farms are impossible to select by eye.

Take a trait like NLB (number of lambs born per ewe). This is one of the main drivers of profitability on all sheep farms. The Irish industry as a whole has made no progress on this trait for the past 40 years, remaining static at 1.3 lambs reared per ewe per year. The reason is simple, this is a trait that cannot be assessed by eye in advance of each breeding season (Autumn). To improve this trait requires the collection of data over a period of time and then using this data make breeding/culling decisions. The same process is required for other 'invisible' traits.



OviData EIP-AGRI Project for Sheep Genetic Improvement – 'An Ounce of Breeding is worth a Tonne of Feeding'

Eamon Wall, OviData EIP-AGRI Project Leader

The OviData EIP-Agri project aims to bring Irish commercial sheep breeding into the next generation. It sets out to collect performance data on Irish sheep enterprises (across 1,500 ewes) and assign parentage to all lambs born through DNA (genomics). Assigning parentage is a critical step as it unlocks the maximum value from the performance records collected on individual sheep. Without parentage information these performance records would be of far less value. Yes, they would tell us how an individual is performing, but big gains can only be made by assessing performance at a bloodline/family level. DNA also allows us to identify the sire of lambs born, an impossible task for most sheep farmers who use a 'team' of rams to protect against possible fertility issues. Knowing lamb sires is incredibly valuable. When combined with performance data we can identify the top and bottom performers very easily.

Year one has passed for OviData and we've collected huge amounts of data, assigned parentage to over 2,500 lambs, identified lots of 'superstar' performers which can now be promoted within our project flocks and identified some rams that failed to impregnate any ewes at all – all of which we would be blissfully unaware of without the project. We hope to build a model that can be followed by other farmers in the future!

Has Policy Separated Biodiversity and Agricultural Production? The Role of EIP-AGRI Operational Group Projects to Realign

Dr Barry McMahon, Associate Professor in the School of Agriculture and Food Science at UCD

In this guest blog, Dr Barry McMahon, Associate Professor in the School of Agriculture and Food Science at University College Dublin (UCD), where he acts as Programme Director of the MSc in Wildlife Conservation and Management, details his thoughts and opinions on how locally-led EIP-AGRI Operational Group projects can play a key role in realigning biodiversity and agricultural production policy efforts.

I was born interested in wildlife and agriculture and spent many weekends in Kildare and other parts of the country walking the lands of Ireland learning about the co-existence of agriculture and biodiversity. I heard, from an uncle who is still farming, of the how the realisation of the intensification and specialisation of the CAP in the 1970' and '80's had fundamentally changed the agricultural landscape that he had grown up with.

I too witnessed the shifts in biodiversity within a reasonably short period of time. I clearly remember standing of the banks of the river Moy, Co. Mayo, in early June 1989 hearing the melodious calls of breeding curlew along with the rasping sounds of corncrake. On returning to the very site a little over a decade later, I to witnessed that both of those bird species had vanished. I struggled to comprehend how people were not upset by the loss of biodiversity associated with these changes, but as time went on I realised that although many people were interested, agricultural production and biodiversity had become separated in the minds of individuals, organisations and Governments. We had not realised the urgency and importance of tackling biodiversity management. However, the realisation that the stability, viability and sustainability of agricultural production systems is underpinned by biodiversity is slowly being re-discovered. In addition, although there were negatives associated with specialisation and intensification of agricultural practices, particularly through environmental resources degradation, the economic benefits to rural development were considerable.

It is quite clear that there will be conflicts between the way we use the land and the conservation of endangered species. A number of species come to mind, fresh water pearl mussel and hen harrier are two high-profile examples. Now, more than ever it is vital that as a society we engage with all stakeholders, especially policy-makers, to understand perspectives and values that may differ from our own.

The facilitation of difficult conversations, and most importantly keeping the conversation going between stakeholders, is essential to ensure that we may realign the importance of biodiversity and agricultural production. Flinging of insults, via social media or other communication platforms, is destructive and counterproductive. The importance of education and communication cannot be understated.

Has Policy Separated Biodiversity and Agricultural Production? The Role of EIP-AGRI Operational Group Projects to Realign

Dr Barry McMahon, Associate Professor in the School of Agriculture and Food Science at UCD

In recent years EIP-AGRI Operational Groups in Ireland and Europe, involving species like hen harrier and curlew, have provided a forum for local communities to co-operate in a way that respects local economies, land usage and biological heritage. These locally-led EIP-AGRI projects provide a great opportunity to continue conversations between various stakeholders while valuing rural life, biodiversity and sustainable land-use. The crucial aspect is the EIP-AGRI model allows for the local context, both biological and sociological, to be facilitated and it is a bottom up approach. Perhaps the EIP-AGRI policy instrument is the mechanism by which we realign the apparently separated components of biodiversity and agricultural production.

As a programme Director of the MSc in Wildlife Conservation & Management and part of the team who delivers modules into the BAgrSc, including Agri-Environmental Sciences, run from the UCD School of Agriculture and Food Science, it is imperative that students understand biological sciences but also the conflicts that can arise between people with different ideas and values. The difficult conversations that arise between stakeholders can be either enormously positive or very destructive; their power cannot be overestimated and they need to be handled skilfully. It is clear that as a nation and as a global society we are facing enormous challenges regarding the management of biological resources. Locally derived EIP-AGRI Operational Groups with appropriate targets provide the greatest scope to realign biodiversity and agricultural production given the current policy environment.

Merging Knowledge and the EIP-AGRI Initiative Application Process: Some Research Findings and Reflections

Dr Jack McCarthy, Post-Doctoral Fellow at Teagasc's Rural Economy and Development Programme

In this guest blog, Dr Jack McCarthy, Post-Doctoral Fellow at Teagasc's Rural Economy and Development Programme, provides us with a comprehensive overview of his PhD research exploring how policy can be made flexible enough to accommodate the rich and complex characteristics of different farming spaces throughout Europe. Jack also details his thoughts and opinions on the EIP-AGRI initiative, outlining the importance of policy acknowledging the farmer's contribution in making future agri-environmental measures more effective and inclusive.

From the small holdings of Transylvania, to upland sheep farming in the West of Ireland, the olive groves of Greece, and sugar beet producing regions of France, the histories, environments, and practices of European agriculture are astoundingly diverse. Accounting for such different farming spaces has long presented a major challenge for policy makers. After all, policy tends to be general, working at the scale of regions, nations, or pan-national organisations like the European Union. How then can policy be flexible enough to accommodate the rich and complex characteristics of different farming spaces?

As part of a research project with Teagasc and UCD School of Geography, I have spent the past four years trying to understand how the Common Agricultural Policy deals with this diversity. The project focused specifically on agri-environmental schemes, which aim to make farming more environmentally sustainable. One tactic employed by the CAP has involved encouraging national governments to include a range of people and groups in the process of designing and implementing CAP schemes.

The main rationale is that by including the knowledge of farmers, scientists, community groups, and other rural stakeholders, we can account for the characteristics of different farming spaces and thereby improve agri-environmental policy. Ireland's EIP-AGRI Initiative reflects this trend.

As part of this Initiative, the Department of Agriculture, Food and the Marine ran a competitive application process inviting locally embedded groups to form and propose projects that would address agri-environmental challenges in their local areas. By this means, the EIP-AGRI Initiative sought to include knowledge input from farmers, land managers, and others with a stake in land use. As readers of this blog will be aware, 23 of these pilot projects are now up and running.

Our research project focused on the early stages of the EIP-AGRI Initiative application process. We wanted to understand how these groups began, what their motivations were, and how they were able to work together to identify challenges and propose solutions. I spoke to members of three groups from environmentally protected upland sheep farming areas. Each group's application proposed measures to improve grazing management on the mountains.

Merging Knowledge and the EIP-AGRI Initiative Application Process: Some Research Findings and Reflections

Dr Jack McCarthy, Post-Doctoral Fellow at Teagasc's Rural Economy and Development Programme

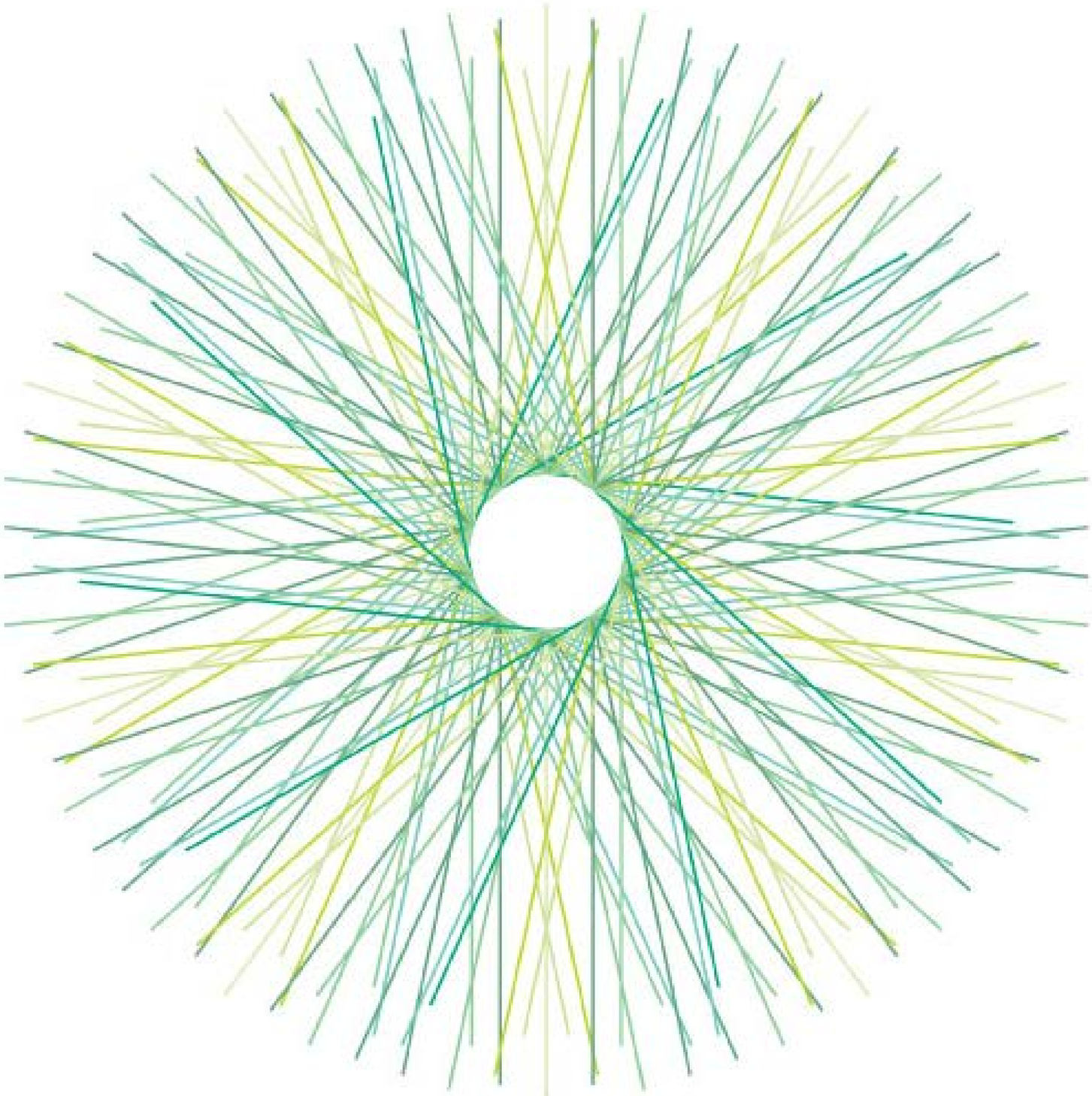
There were three main similarities. First, although dozens of farmers were included in each group, four to seven locally embedded individuals were the main drivers of each respective application. These individuals tended to have experience as representatives in farming organisations, community development or other leadership positions. Second, those who led the process were highly motivated by the prospect of providing knowledge of the specific farming, social, and ecological characteristics of their local area. This prospect was a key reason to engage with the EIP-AGRI Initiative. Third, all groups engaged with local or external institutions that helped facilitate decision making, provided scientific knowledge, or provided policy advice. Significantly, the EIP-AGRI Initiative's application process was flexible enough to allow for a merging of different kinds of knowledge, thereby allowing groups to produce proposals that addressed both local concerns and national policy goals.

To me, the EIP-AGRI Initiative represents an important step for Irish agricultural policy in beginning to acknowledge the contributions that farmers can make to adapting policy to diverse farming spaces. This kind of approach has the potential to build partnerships between different kinds of stakeholders for mobilising, sharing, and merging knowledge, as promoted by UN Sustainable Development Goal number 17.

However, more comparative research is needed in order to identify the specific institutional arrangements and supports that allow these processes to occur in different contexts so that agri-environmental policy can be more effective and inclusive. Reflecting on the EIP-AGRI Initiative itself, it is also important to acknowledge the labour intensive, creative, and largely voluntary work carried out by local groups in producing EIP-AGRI Initiative proposals. For the government it is therefore important to continue communicating the value of the 23 current EIP-AGRI projects through bodies like the National Rural Network and provide information to the public as to how these will inform the post-2020 CAP.

National Rural Network

NRN EIP-AGRI Guest Blogs 2018



eip-agri

AGRICULTURE & INNOVATION

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

The European Agricultural Fund for Rural Development:
Europe investing in rural areas

NUI Galway
OÉ Gaillimh

EIP-AGRI Operational Groups - Ireland's Unique Opportunity

Dr James Moran, Lecturer in Biology and Ecology at Galway Mayo Institute of Technology

In this NRN guest blog, Dr James Moran, lecturer in Biology and Ecology at Galway Mayo Institute of Technology (GMIT), provides us with an insightful overview of the basic principles of the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) Operational Groups, and the opportunities these groups hold for rural Ireland.

Member states have a certain amount of flexibility in the implementation of EU regulations. This is particularly true of the Rural Development Programmes (RDPs) which allow member states to develop their own programme within a common EU framework. Ireland is using this flexibility to adapt a locally led approach to the implementation of EIP-AGRI operational groups, and already we are starting to see signs that this approach could have significant results for local areas across the country.

The implementation of EIP operational groups across the EU seeks to bring a diverse range of partners (farmers, advisors, scientists, agri-business and the wider community) together to develop innovative solutions to a wide range of problems and challenges facing EU agriculture. Within the RDP framework member states have the opportunity to set up and fund these operational groups. An informative EIP_AGRI brochure has been produced by the EU Commission to help communicate how operational groups can get started and Ireland's BurrenLIFE programme is highlighted as an exemplar for EU EIP-AGRI Operational Groups.

Learning from the success of the Burren model where the locally led approach has made significant progress, Ireland is adapting a locally led approach to the implementation of EIP-AGRI Operational Groups. The key focus is to fund the setup of local partnerships to tackle local challenges that relate to national and EU rural development priority areas. Groups submit a phase 1 application and a selection of innovative ideas are funded to prepare full project plans in phase 2. Successful phase 2 groups are further funded to implement, trial and test their innovative ideas with the overall aim of informing wider implementation in Ireland's next RDP. With a total budget of almost €60 million this fund has the potential to stimulate innovation in a wide range of areas. The priority areas range from biodiversity and climate to water management to food chain organisation and risk management.

Since the first call opened at the end of 2016 long days and nights have been spent by groups of dedicated individuals and organisations around the country. The overwhelming response has caught everyone by surprise. There is a real appetite in local communities around Ireland to devise locally adapted solutions to the pressing issues that we face. Approximately 118 groups applied for funding in the first round, with 23 selected and funded for full project plan development over the summer of 2017. It is expected that approximately 50% of these will be selected for full implementation by the end of this year (2017).

EIP-AGRI Operational Groups - Ireland's Unique Opportunity

Dr James Moran, Lecturer in Biology and Ecology at Galway Mayo Institute of Technology

The first 12 months have been a steep learning curve for us all. Many groups were inspired to act by an identified local need for action on a particular issue/ challenge. This acted as a catalyst for the formation of a fledgling partnership. Potential partners needed to work quickly to come to a common understanding of what they wanted to achieve in the short term with the EIP application. However, the most successful groups were developing a medium to long term shared vision. Success in phase one secured funding to build trust and capacity within the partnership and develop the ideas further into a feasible pilot project.

The need for dedicated community champions to take initiative and drive innovation was evident in many of these EIP fledgling groups. These individuals play a key role in the formation of the partnership and maintenance of momentum. The need to develop mutual understanding and the ongoing process of trust and capacity building within the partnership is a key challenge. What size the partnership should be was a frequent question and topic of discussion among groups. There is no right or wrong answer and this is evident from the range of partnerships emerging in the initial applications. A range of expertise is needed to make a local partnership successful.

The number of partners needed depends on the scale of the challenges targeted by the group. It is clear that more is not necessarily better. A diverse partnership brings the opportunity for innovative solutions but the larger the partnership the more difficult the challenge of effective partnership formation. Many groups came to the realisation that not all stakeholders need to have the same level of involvement. A core group will always take the initiative but support of a wider network will be key to the sustainability and success of the partnership in the long term. The support of state agencies and government departments, the wider community including NGOs was key for many groups. Motivated and enthusiastic local individuals in these organisations is key.

It appears that partnerships work best when focused on issues/challenges in specific local areas. This leads to the potential development of locally adapted, practical and results focused innovation/solutions.

Throughout the process the partnership needs to focus on building trust, respect and capacity. A 'can-do' atmosphere is essential. The first 12 months of this initiative have highlighted that there is a willingness in local communities across the country to seize the initiative and work together to find solutions to challenges that often seem intractable at national level.

Embracing the Ethos of the EIP-AGRI Initiative

Dr Barry O'Donoghue, Head of Agri-Ecology with the National Parks & Wildlife Service

In this NRN guest blog, Dr Barry O'Donoghue, Head of Agri-Ecology with the National Parks & Wildlife Service, at the Department of Culture, Heritage and the Gaeltacht, gives us his thoughts and opinions on how the European Innovation Partnership for Agri-cultural Productivity and Sustainability (EIP-AGRI) initiative can play a fundamental role in ensuring a brighter future for rural Ireland and its heritage.

In April 2016, I remember sitting with a farmer in one of my favourite places in Ireland, the Derrynasaggart Mountains. These Mountains straddle the Cork and Kerry border – perhaps the very mountains referred to in the great song "Whiskey in the Jar". There is a certain music to these mountains themselves; literally and metaphorically. The music of Seán Ó Riada can be heard emanating from mass in Baile Bhúirne, wafting up across the farmland towards Mullach an Ois at 649m above sea level, with the RTÉ Mullaghanish Mast standing 225m tall on top again, beaming out music to radios across the south. The lambs and ewes are calling across the mountains and valleys, while the Raven, the Cuckoo and the Skylark add to the soundtrack. Green fields sit beneath "rae" (dry heath); streams and rivers make their way downwards; while patches of willow and birch scrub, and pockets of native oak woodlands finesse the landscape.

The farmer and I are sitting hoping to see one of Ireland's rarest and most magnificent birds – the Hen Harrier. April is the time of the year when one can witness the spectacular 'sky dance' of the male Hen Harrier – one of the greatest sights you could ever wish to see in nature anywhere across the globe. The farmer has continually updated me on the sightings he and his daughter have had of the birds on their lands, since I began as a Ranger with the NPWS there over a decade ago. Since 2013 though, I have been looking after the Agri-Ecology Unit of NPWS, where I am in suits more than boots, so I tend to have mainly just the weekends to get out and look for wildlife (one of the trade-offs for the great position that I now find myself in with NPWS).

The talk between the farmer and I turns to a local school, in Carriganimma on the other side of Mullach an Ois. The school was at risk of closing due to low numbers. Closure would be a massive blow for the community. Local pubs, the local creamery, a petrol pumps and the post office have already been lost in the few decades my friend has been farming. The parents of the school children there clubbed together and offered to buy uniforms and books for any new children that would enrol in the school, for example from the towns of Millstreet or Macroom. The plan succeeded and a couple of new pupils enrolled, so Carriganimma school was saved!

Embracing the Ethos of the EIP-AGRI Initiative

Dr Barry O'Donoghue, Head of Agri-Ecology with the National Parks & Wildlife Service

We look across the landscape and he points to all the farms that have been lost. Family names rhymed off, but no fields to associate them with; given they have been replaced by forestry. "European Innovation Partnership" are words that come from my mouth and seem as incongruous in the townland of Com na Cloiche as a saxophone in a Seán Ó Riada composition. I explain to him that a new scheme is being developed for Hen Harrier Special Protection Areas, to help the declining Hen Harrier population (this SPA is down to just two breeding pairs; a staggering decline of 60% in a decade), by supporting the local farmers to support the habitats the harriers and so many other fragile species depend on. "It will be classed as a European Innovation Partnership, an EIP". When broken down into its elements, it actually makes perfect sense. It is co-financed by Europe. There is certainly a great degree of innovation involved. It is a partnership approach; with farmers and ecologists in particular working most closely together.

Fast forward to December 2017. In the same Hen Harrier SPA (Mullaghanish to Musheramore), Minister for Agriculture, Food and the Marine Michael Creed TD is standing in a field that remains like an island surrounded by a sea of forestry, launching the Hen Harrier Project with local farmer Jack Lynch and an excellent management team, headed by Fergal Monaghan. This is the first EIP in Ireland and is a concept that developed between the Department of Agriculture and the National Parks & Wildlife Service of the Department of Culture, Heritage & the Gaeltacht. It has now become a real thing and is live. Whether it is known as an EIP in Com na Cloiche or Drommada More (Glanaruddery Mountains) or Reynclamper (Sliabh Aughty) or Knockanearla (Sliabh Beagh) remains to be seen. What is sure is that there are hopes and goodwill that the project will help the Hen Harrier and various other native wildlife, but importantly also that it will help the farming families that share and shape the landscape.

The additional income could well be the difference between a family leaving farming or continuing. It could be the difference between a young farmer seeing the land that has been passed to them from previous generations as something to be proud of; that they are looking after one of Ireland's rarest pieces of natural heritage and that they can in turn derive some income from that, so that keeping stock on the hills in addition to the day job is something worth committing to. It could then be the difference between a couple of school children attending the local national school or not. The Hen Harrier has the potential to keep people on the land and the people have the potential to keep the Hen Harrier on the land. Let's hope this partnership succeeds. The innovation shown by the local parents to keep the school alive will hopefully come to bear again across the Hen Harrier SPAs and save the remaining biodiversity just in the nick of time. In an age of seemingly unstoppable march of populations towards larger towns and cities, this is as important for Europe as it is for the local community.

There are so many areas across rural Ireland, with their own individual stories and histories. Areas rich in natural, social and cultural heritage. Local solutions for local issues, supported by central Government and Europe appears to be a good recipe and we are all hopeful that the European Innovation Partnership approach, which will be rolled out across a suite of areas and issues, will prove to be a successful one. These initial pilots will inform future engagement with and of local communities to provide a brighter future for rural Ireland and its heritage.

Mobilising Forestry Biomass via Sustainable Means

Kieran Sullivan, IT Researcher at Waterford Institute of Technology and Part-time Farmer and Forester

In this NRN guest blog, Kieran Sullivan, part-time farmer and forester from Co. Waterford, and IT researcher with Waterford Institute of Technology, provides us with an invaluable insight into his own personal experience of participating in a European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) Focus Group exploring 'Sustainable Mobilisation of Forest Biomass (SMFB)'. Kieran also gives us his thoughts and opinions on how an increase in demand for forestry biomass to produce energy can be achieved in a sustainable manner.

You wouldn't think it, but roughly one-third of all land in Europe is covered by forests. This equates to over 215 million hectares, with an average increase of 700,000 hectares per annum. Europe is a big place however and its forestry is as diverse as the people and their cultures who live around these trees. Each forest type serves many interlinked functions. These include the production of logwood and biomass, habitats for wildlife, securing water management and soil fertility, storing carbon, and facilitating recreation, among others.

Various programmes and initiatives are focused on these different functions, and given the expected increase in demand for biomass, an EIP-AGRI Focus Group on Sustainable Mobilisation of Forest Biomass (SMFB) was established in 2016-17 to examine a number of specific aspects. EIP-AGRI Focus Groups are temporary groups of selected experts focusing on a specific subject, sharing knowledge and experience. The groups explore practical innovative solutions to problems or opportunities in the field, and draw on experiences derived from related useful projects.

The main driver for this demand for biomass is energy generation and since only 60-70% of the annual increment of EU forests is harvested, the potential exists to increase forest biomass mobilisation; in particular, amongst small private holdings and silvicultural practices such as pruning and complementary fellings (namely first thinnings).

A number of challenges had to be considered though, including sustainability, competitiveness of the forest-based industries, efficiency and economic viability, organisation and motivation of forest owners as well as new tools and technologies. In mobilising forest-based biomass, economic, environmental and social functions of forests have to be safeguarded.

Against this background, the main question addressed by the EIP-AGRI Focus Group on Sustainable Mobilisation of Forest Biomass (SMFB) was, "How to improve the sustainable mobilisation of biomass from our European forests?". The Focus Group concentrated on mobilising different types of forest biomass for all potential markets and how to better interlink supply and demand, taking into account the current underused potential supply of forest biomass.

Mobilising Forestry Biomass via Sustainable Means

Kieran Sullivan, IT Researcher at Waterford Institute of Technology and Part-time Farmer and Forester

Following an open call for selecting members, EIP-AGRI chosen 20 experts from around Europe. These included foresters, farmers, scientists, Government advisors, and environmentalists; together with a coordinator and two support members, the Group kick-started its work in Tampere, Finland, in June, 2016. The final result is a wide-ranging report, complete with insights and recommendations, and to feed into this, the Group centred on eight supporting documents (entitled, mini-papers):

- MP1: Multi-actors / Stakeholders involved in SMFB
- MP2: Forest Ownership types
- MP3: Forest Biomass Markets
- MP4: Decision support tools
- MP5: Harvesting technologies
- MP6: SMFB contribution to environmental issues
- MP7: Incentives for SMFB
- MP8: European map of the regional forest-based sector

Over the course of a year the mini-papers were scoped out and developed, before a second and final workshop in Ljubljana, Slovenia, in February, 2017. At this point, the mini-papers were finalised and work began on incorporating them in the final report.

The Groups main findings centred on three complementary topics: (a) Market trends and new demandforforestbiomass;(b)ToolstoincreaseSMFB, such as digitisation, harvesting and transportation technologies, decision support tools and incentives; (c) Owners and other actors and potential climate/ environment benefits.

The findings are explained in detail in the final report from the SMFB Group, which also contains 28 research themes and ideas to sustainably increase forest biomass. Of these, six activities were prioritised by the 20 experts:

1. Evaluate impact of existing mobilisation incentives
2. Extract lessons from existing regional forest ownership organisations
3. Analyse future demand and supply, including new and traditional value chains
4. Develop user-friendly information platforms and new map-based tools
5. Investigate potential of new cross-regional value chains and production systems
6. Identify and explore incentives for carbon sequestration through active forest management.

Lesson Learned from the 'Robust and Resilient Dairy Production Systems of the Future' EIP-AGRI Focus Group

Mike Brady, Managing Director of Brady Group Agricultural Consultants and Land Agents

In this NRN guest blog, Mike Brady, Managing Director of Cork-based Brady Group Agricultural Consultants and Land Agents, provides us with an invaluable insight into his own personal experience of participating in a European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI) Focus Group looking at 'Robust and resilient dairy production systems of the future'. EIP-AGRI Focus Groups are temporary groups of selected experts focusing on a specific subject, sharing knowledge and experience. The groups explore practical innovative solutions to problems or opportunities in the field, and draw on experiences derived from related useful projects.

I participated in a Focus Group, assembled by the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI), to look at 'Robust and resilient dairy production systems of the future'. The group that I was involved in had 20 members, consisting of a mix of farmers, advisers and researchers from across the European Union (EU). EIP-AGRI is an EU initiative which aims to speed up the innovation process in the agricultural and forestry sectors by bringing research and practice closer together. The focus group is just one of the building blocks which will influence policy makers in the EU Commission.

The overall aim of this Focus Group was to identify how to create good conditions for dairy cattle husbandry in different production systems. The group looked at approaches and practices which take into account breeding, nutrition, fertility, health, welfare, monitoring, and overall management in all parts of the life cycle of animals. The impact on profitability and sustainability (in animal welfare terms) was assessed. The Focus Group was expected to carry out the following main tasks:

- To identify new or underused approaches and practices which increase robustness in dairy cattle husbandry in different production systems

and regions. Practices and strategies increasing robustness at animal, farm, species and/or production system level can be taken into account.
- To analyse the impact of the most promising identified approaches and practices on profitability and animal welfare, their success and fail factors and barriers for implementation.
- Summarise how to address these aspects and explore the role of innovation and knowledge exchange in addressing the challenges identified.
- Propose potential innovative actions and ideas for Operational Groups to stimulate the use and improvement of robustness related practices at farm level.
- Identify needs from practice and possible gaps in knowledge related to robustness which may be solved by further research.

Lesson Learned from the 'Robust and Resilient Dairy Production Systems of the Future' EIP-AGRI Focus Group

Mike Brady, Managing Director of Brady Group Agricultural Consultants and Land Agents

The group met two times face to face. The first meeting took place in Zagreb, Croatia, hosted by the Croatian National Rural Network, on 23-24 November 2016. The second was in Edinburgh, Scotland, on 19-20 April 2017, hosted by the Scotland's Rural College. In preparation for the first meeting, a starting paper was prepared by the EIP-AGRI Service Point team, setting the scene for the coming work. A questionnaire was sent to the experts prior to the meeting to inventory which topics, according to them, could contribute the most to improve robustness and resilience in dairy production systems.

The first meeting of the Focus Group was primarily concerned with making an inventory of relevant topics and related measures and strategies to achieve robust and resilient dairy production. Following these discussions, topics for mini-papers were decided and groups were formed for the selected seven topics. Between the first and the second meeting, the groups produced mini-papers.

At the second meeting, the preliminary mini-papers were presented and discussed by the whole Focus Group. Based on that, the group prioritised and described the five main directions towards robustness and resilience:

1. Precision Livestock Farming: Data integration and interpretation (different devices/systems – indicators
2. Systems: Put in place a program for dairy farmers to review/reflect/validate their system of production to achieve 'best practice' for R&R dairy production systems
3. Indicators: Integration of a selection of indicators in an index that provides R&R scores at an individual, group and system level
4. Skills: Curriculum development farmer. To be organised, dynamic for person and in time.
5. Socio-economics: Develop milk sector programs: EU framework national and regional adaptation including regulation, contract rules, including instruments to manage overproduction.

These 5 directions were used to guide the discussion on success and fail factors and to identify the gaps in terms of adoption. The second meeting continued identifying the success and failure factors concerning further adoption and development of the five directions. Finally, the group discussed which gaps for adoption in terms of research needed and innovations to be addressed. The experts worked out potential innovative actions (Operational Group ideas) to stimulate the knowledge and use of management practices and strategies. The second meeting also included field visits to two Scottish dairy farms. The 1st farm we visited was Brian Weatherup and Partners, Parkend Farm, a dairy farm with Holsteins and having installed 2 milking robots. The 2nd farm was A&S Lawrie, Cuthill Towers, an Ayrshire dairy farm. These visits were of great help in putting a practical implementation perspective on the Focus Group recommendations.

Overall, I found the focus group to be a wonderful experience, providing me with an invaluable insight into the minds, ideas and attitudes of farmers, advisers and researchers from all corners of the EU. I have returned with a more balanced understanding of dairy farming in the EU and I can now disseminate this information to clients and to the wider agricultural community through the media.

Digital Skills in Farming for a Digital Future in Agriculture

Ethan Cleary, Technology & Innovation Executive, Irish Farmers' Association

In this guest blog, Ethan Cleary, Technology & Innovation Executive, Irish Farmers' Association explains in detail the need for the development of a digital skills model for farmers that would enable them to learn the necessary skills to analyse, assess and implement the best actions, solutions and technologies for their farm business. He also provides us with an insightful overview of the recent EIP-AGRI workshop on 'Enabling Farmers for the Digital Age: the role of AKIS', and its key role in identifying how all actors in the agricultural knowledge innovation system can support the understanding and use of digital technologies at farm level.

Digital skills are becoming an essential element of modern farm management as an increasing amount of digital technologies focused on the agricultural sector come on the market. This is also reflected in the regulatory requirements farmers face, such as the EU Commission's demand that all Basic Payment Scheme (BPS) application be completed online in 2018.In response, a digital skills model is required to be developed for farmers where they can learn the skills to quickly analyse, assess and implement the best actions, solutions and technologies for their farm business.

This is an extremely challenging proposition in the short-to-medium term. As adopters of digital technologies, farmers are both forward-thinking and, at the same time, resistant to change – and for good reason; farmers get one attempt a year to grow a crop and make a profit. Whatever technology makes its way into the fields had better work. But often they revert to tried and tested handed down know-how.

On top of the sector-specific challenges, digitalisation is having a major impact on the labour market and the type of skills needed in the rural economy and is redefining the role of farmers and agri-cooperatives. There has been an increase in the need of people with ICT and digital skills, but there is huge

skills gap in the economy, and that is felt even more acutely in rural areas.

As jobs and entire industries are changed through digital disruption, those affected should have the appropriate supports required to adapt. The digital skills gap is particularly evident in agriculture, especially if we look at the oft-cited McKinsey Digital Index, and the immediate focus should be on closing that gap.

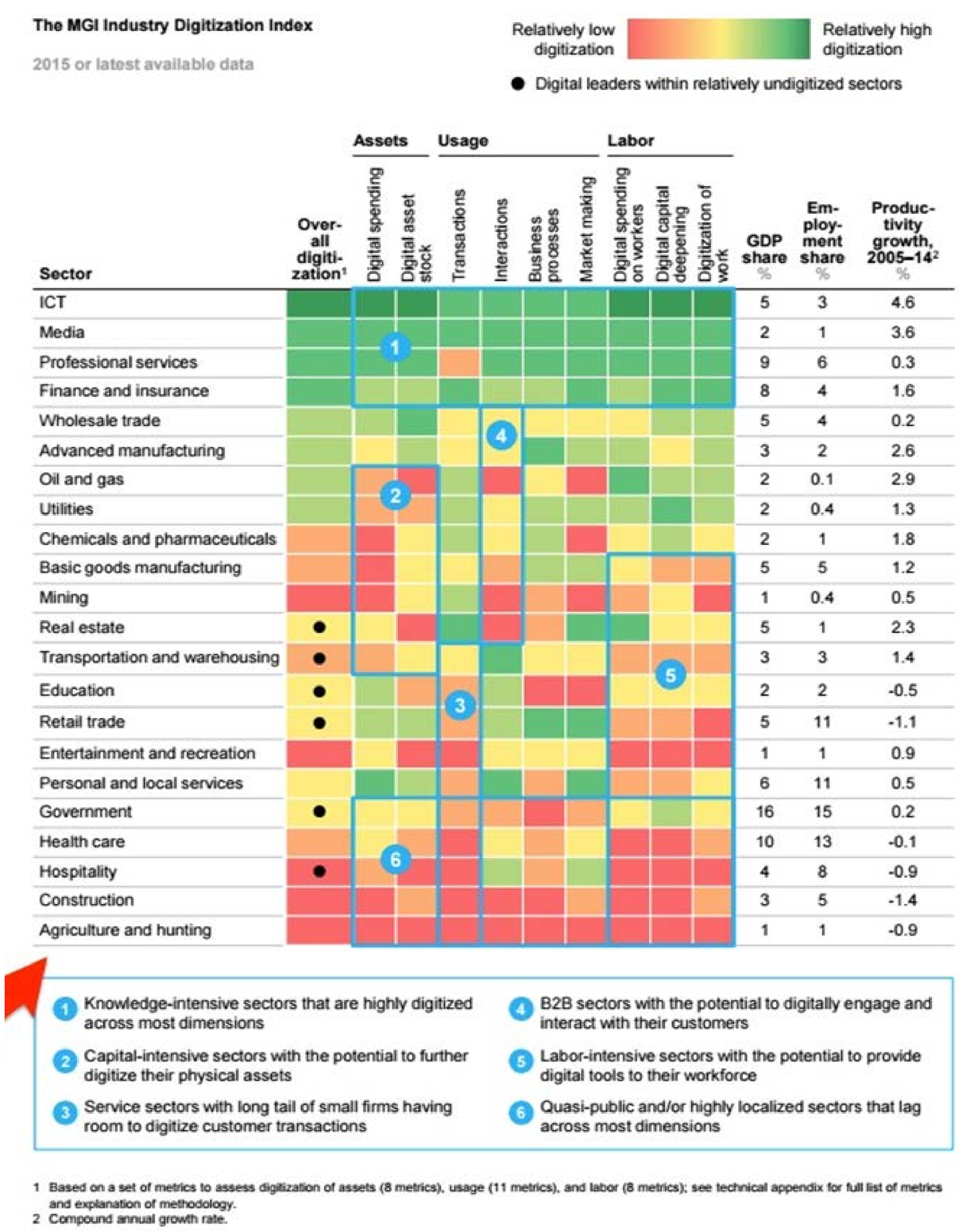


Fig. 1 – The McKinsey Global Institute Digitization Index

Digital Skills in Farming for a Digital Future in Agriculture

Ethan Cleary, Technology & Innovation Executive, Irish Farmers' Association

Digital Agriculture

When we talk about 'digital agriculture', we mean the use of digital technologies and data in order to; redefine and improve business process, optimise (and potentially develop new) business models, create the environment for digital business to occur, and to make the business more profitable and sustainable.

'Precision agriculture' is probably the best-known manifestation of digitalisation in agriculture. Put simply, precision agriculture, is a modern farm management concept using digital technologies to monitor and optimise agricultural production processes and it applies to all farm sectors.

One of the outcomes from the increased adoption of precision agriculture, is an exponential increase in the amount of data generated through farming and up and down the agri-food supply chain, which mirrors the global data growth rate.

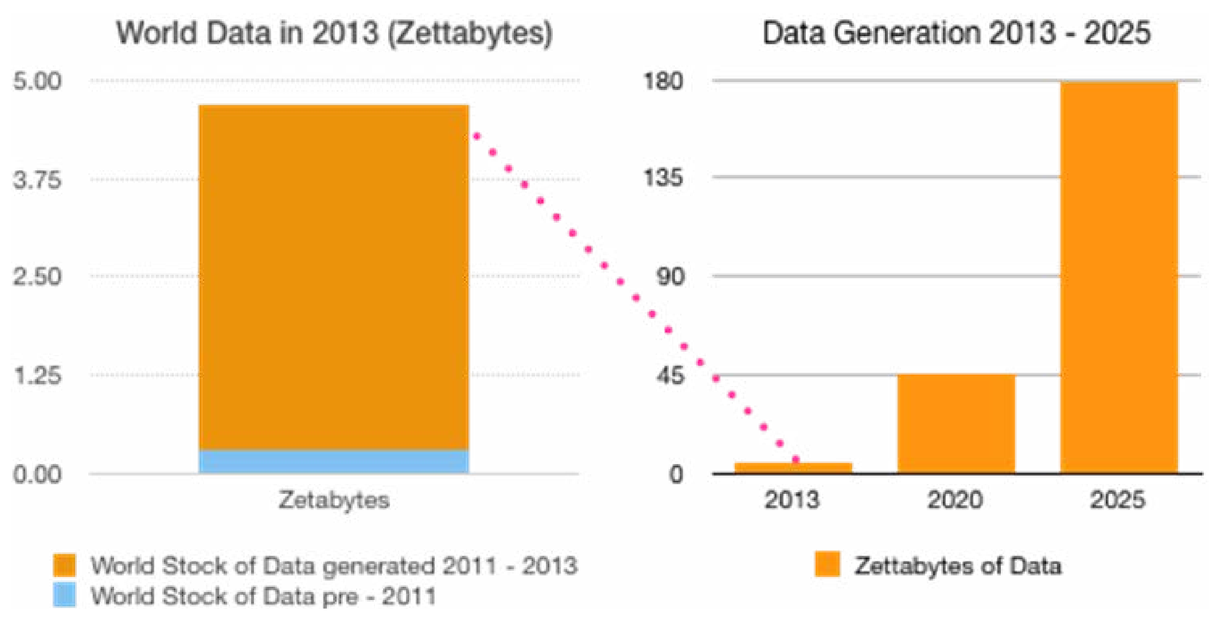


Fig. 2 – The exponential generation of data generation based on current growth models

Source: International Data Corporation (IDC) Data Age 2025: The Evolution of Data to Life Critical: https://www.seagate.com/files/www-content/our-story/trends/files/Seagate-WP-DataAge2025-March-2017.pdf

This new data-supply chain now places farmers in a new context and redefines their role in the supply chain. This has the potential to create transformative agricultural business models, leading to cheaper, safer, and better produce. But it also requires that farmers have the skills to take advantage of these changes.

Indeed, experts are continually highlighting the economic and societal potential of precision farming, with the EU Agricultural Commission increasingly referring to how precision agriculture and digitalisation will be a core part of the next Common Agricultural Policy and beyond (European Parliament 2014; 2016).

Digital Capabilities for All

For those lacking basic digital capability, the reasons for exclusion are often complex. Research suggest that there are four key barriers, and more than one may affect individuals at any one time:

1. Access: the ability to connect to the internet and go online
2. Skills: the ability to use the internet and online services
3. Confidence: a fear of breaking, fear of crime, lack of trust or not knowing where to start online
4. Motivation: understanding why using the internet is relevant and helpful

A fully realised end-to-end digital skills programme should be developed in response to these barriers where awareness of the business model benefits (and the risks) attached to the technology are thought alongside how to use these technologies.

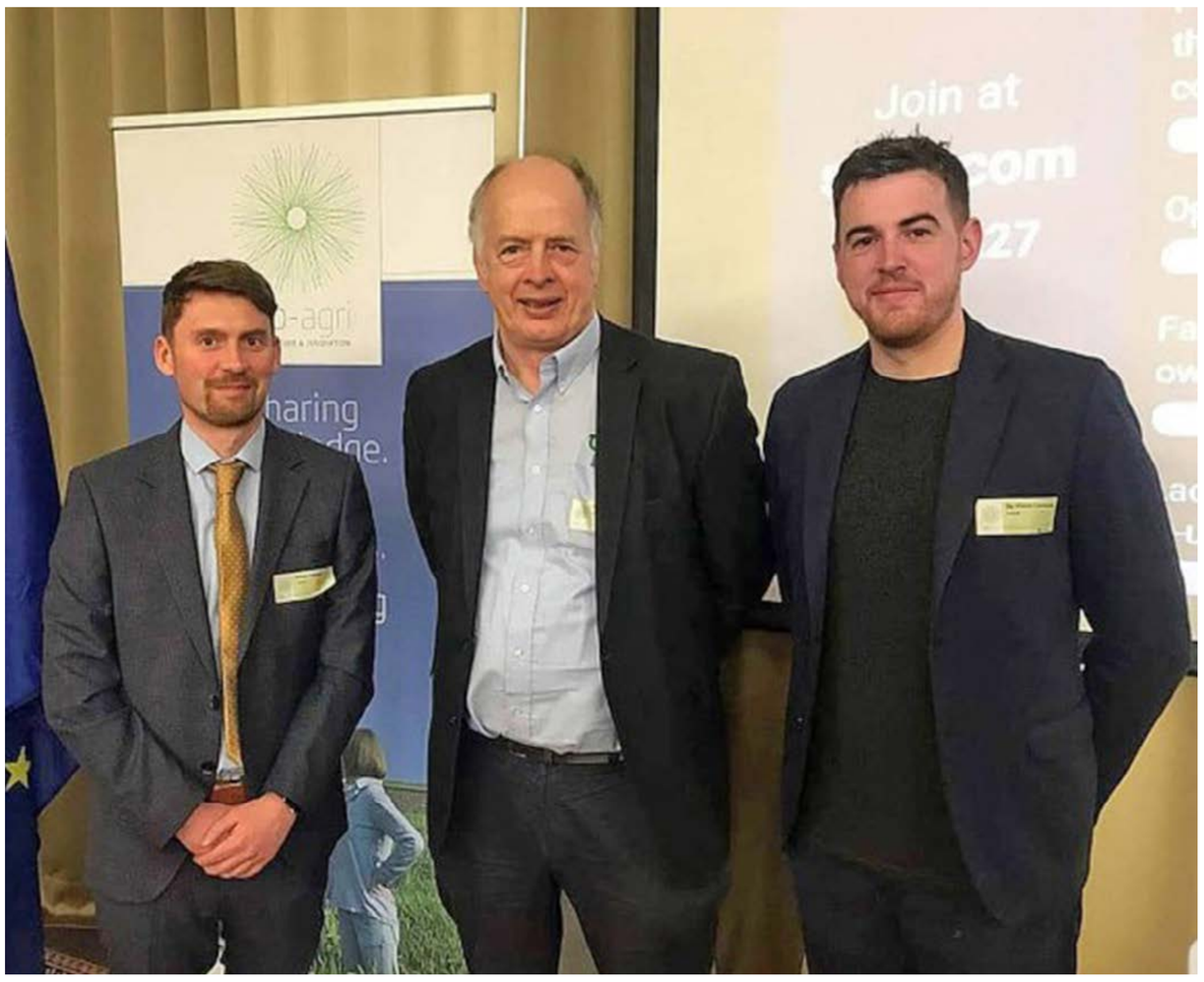
Given the complex and multifaceted nature of farming, the adoption of digital agriculture requires knowledgeable and skilled farm managers and labourers, as well as a cadre of well-educated consultants, service providers and other extension agents.

Digital Skills in Farming for a Digital Future in Agriculture

Ethan Cleary, Technology & Innovation Executive, Irish Farmers' Association

Digital Skills Models

At the EIP-AGRI workshop on 'Enabling Farmers for the Digital Age: the role of AKIS', the focus was very much on how all actors in the agricultural knowledge innovation system can support the understanding and use of digital technologies at farm level. Farmers were identified as being central to the agricultural innovation system and are key actors in many communication, awareness raising and educational activities such as mentoring, on farm demonstration, peer to peer exchanges, on farm testing, community expert groups and networks, etc. In these cases advisers are equally seen as facilitators/trustees and as knowledge providers. Farmers, especially the ones who are already engaged, who have 'success stories' and who are front runners are also called upon to be ambassadors and trainers.



This is why approaches such as "skills based learning" and "context based learning" should be explored as a means for getting the most out of digital technologies. These approaches advocate learning on the job with the instructor role now morphing into the role of facilitator. This social learning approach is already occurring in the successful discussion and knowledge transfer group model in existence in the EU. Social learning involves learning with and from others, and uses digital tools such as private and public online group discussions portals to complement the face-to-face interactions in the real world.

Tailored and targeted programmes are required in the short-to-medium term. Lowering the adoption hurdles through incentivising new technology uptake through policy instruments and programmes, such as the Rural Development Programme, may give a clearer indication of the true level of digital skills competencies and attitudes to digital technologies across European agriculture.

Longer term, models like "lifelong learning'' that lead to the continual reinforcement and upskilling of general and specialised digital technologies will become central to farm management practices and only fortify the existing culture of continuous improvement already in place on Irish farmers and will be critical for our international competitiveness into the future.

Realising the Potential of Forestry in Ireland through EIP-AGRI

Dr. Nuala Ní Fhlatharta, Head of the Teagasc Forestry Development Department

In this guest blog, Dr. Nuala Ní Fhlatharta, Head of the Teagasc Forestry Development Department, provides us with an insightful and comprehensive overview of the opportunities and challenges facing the forestry sector in Ireland. Dr Ní Fhlatharta also highlights two EIP-AGRI forestry initiatives that she was involved in over the past few years with other experts in this field from across the EU on the topic of 'Wood Biomass Mobilisation' and 'New Value Chains from Multifunctional Forests'. She explains that EIP-AGRI Operational Groups have the potential to progress both these areas.

The area under forest in Ireland has increased from what was a worryingly low level of about 1% of our land area at the beginning of the 19th Century to over 11% by 2018. This is a tremendous achievement and is probably one of the greatest Irish land use changes of modern times. However, if we consider it in the context of a longer time scale, we still only have a small percentage of the forest area that was originally in Ireland in the 17th Century, after which industrialisation, the plantations and the increase in population resulted in the massive clearance of these forests. A consequence of this ongoing clearance of forests was the loss of habitats and the associated plants and animals.

Our forest cover is still very low in comparison to the EU average of 42% of land area. Most of our private forests have been established since the 1990s and this means that the long tradition of forests and forestry practice that exists across Europe is largely absent here in Ireland. However our relatively young forests provide a very exciting opportunity for the forest owners, the surrounding rural communities and for Ireland as a whole. Generally these young private forests are quite productive and have the potential to provide additional rural jobs and added amenity value if properly managed and developed.

The forecast of Irish timber supply shows that the potential volume of wood coming onto the market is set to double by 2035, with practically all the increase coming from these private forests. While this is an exciting opportunity, it also presents a significant challenge. With over 20,000 forest owners involved there is a logistical and infrastructural challenge as many have had no previous engagement with the timber-harvesting and timber-buying sectors. Wood processors have to date dealt with a small number of suppliers and now need to develop systems to handle this new, more diverse supply chain.

This also provides the opportunity for new wood-using industries to develop in rural areas. With increased interest in the potential of developing the bioeconomy this new timber supply that is coming on-stream may provide opportunities for exciting new forest-based products and services.

This additional timber supply and forest resource means that we have the opportunity to develop innovative uses and applications to suit Irish conditions and also add optimal value in the form of financial and non-financial benefits. EIP-AGRI has already supported this process and hopefully can continue to do so.

Realising the Potential of Forestry in Ireland through EIP-AGRI

Dr. Nuala Ní Fhlatharta, Head of the Teagasc Forestry Development Department

In the past few years I have been involved in two relevant EIP-AGRI initiatives:

EIP-AGRI Focus Group on Wood Biomass Mobilisation

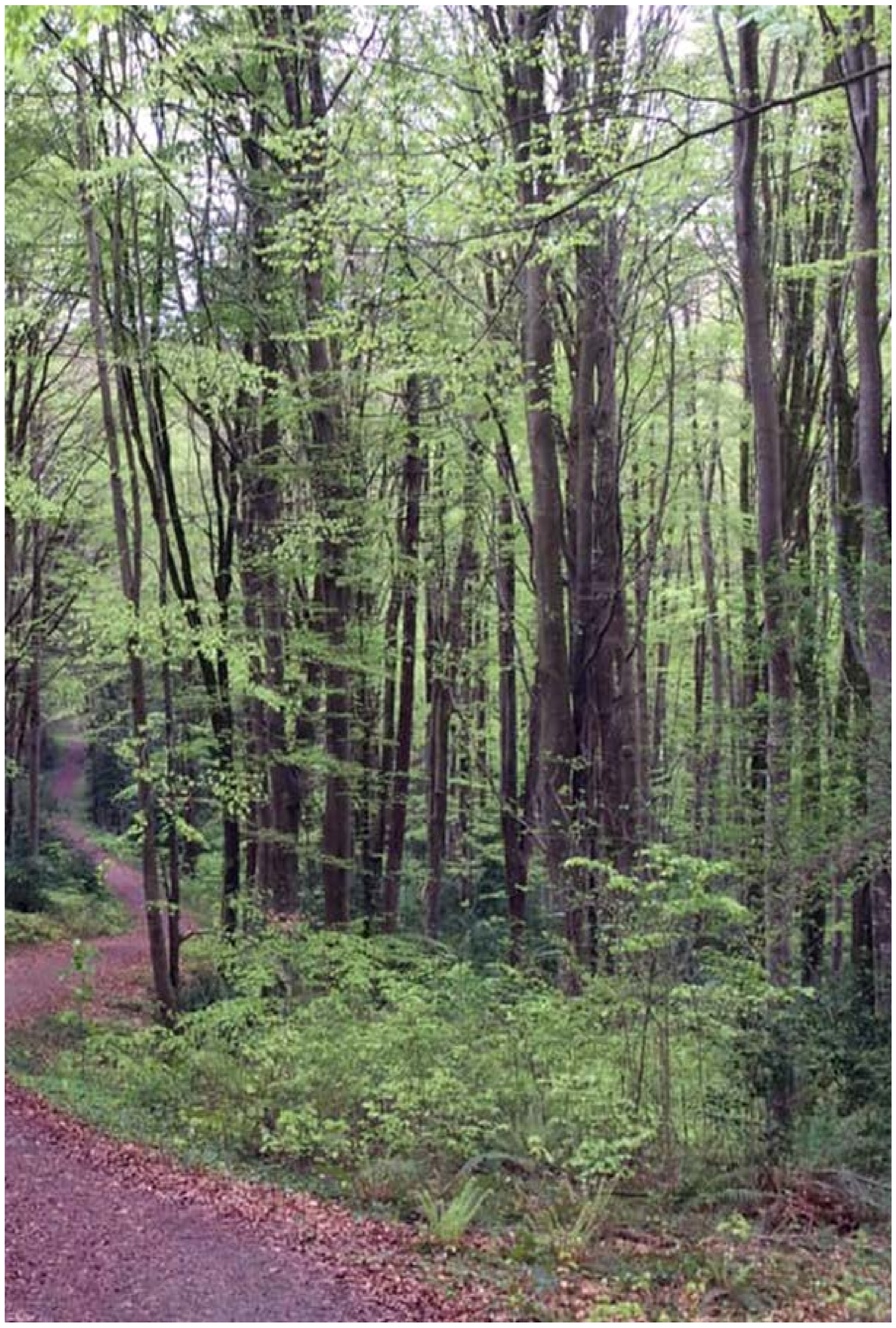
This EIP-AGRI Focus Group provided an excellent insight into the common issues being faced across Europe in getting woody biomass from the forest to the end user. What was interesting for me were the approaches being taken and the solutions developed in different countries. That's not to say that these solutions are directly transferrable to Irish conditions, but elements can be applied and adapted to help identify local innovative solutions.

In relation to the work of the focus group a number of experts from across the EU identified the success and fail factors for wood mobilisation and how these could be harnessed and addressed at local, regional, national and EU level. The potential of extension, digital technology, co-operation mechanisms, good-practice examples and incentives to increase mobilisation were among the topics discussed. A range of potential innovation and research actions, including Operational Groups, was proposed that would help advance these potential solutions.

EIP-AGRI Workshop on New Value Chains from Multifunctional Forests

This EIP-AGRI workshop brought together a range of actors involved in and interested in developing new uses of our forests. The workshop served to open our minds to the limitless boundaries that forests have in relation to adding value. This potential was explored under the headings food, non-food, agro-forestry and recreational and leisure use.

There are infinite opportunities ranging from niche markets including chickens and eggs marketed as woodland chickens to the use of forests for foraging for a range of aromatic plants. The tourism and recreation opportunities are also substantial.



New value chains have the opportunity to add significantly to our forests' worth. There are opportunities and challenges in extracting this value and these were explored at the workshop and can be grouped under business development needs, co-operation needs, capacity building and policy and legislation issues. The potential of Operational Groups to progress such value chains was clear. This includes groups to test and develop new products, the implement forest management practices, product development and quality control and innovation in on-line platforms. The advancement of forest management practices and services to encourage tourism and recreation and to encourage environmental enhancements also provide opportunities along with the development of technology transfer to encourage business development.

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

eip-agri

Irish EIP Operation

1 Inishowen Upland Farmers Project

2 Cúlra Créafóige - Cultivation Renewal Programme

3 The Conservation of Breeding Curlew in Ireland

4 Farming Rathcroghan Project

5 Maximising Organic Production Systems (MOPS)

6 North Connemara Locally Led Agri-environmental Scheme

7 Caomhnú Arann

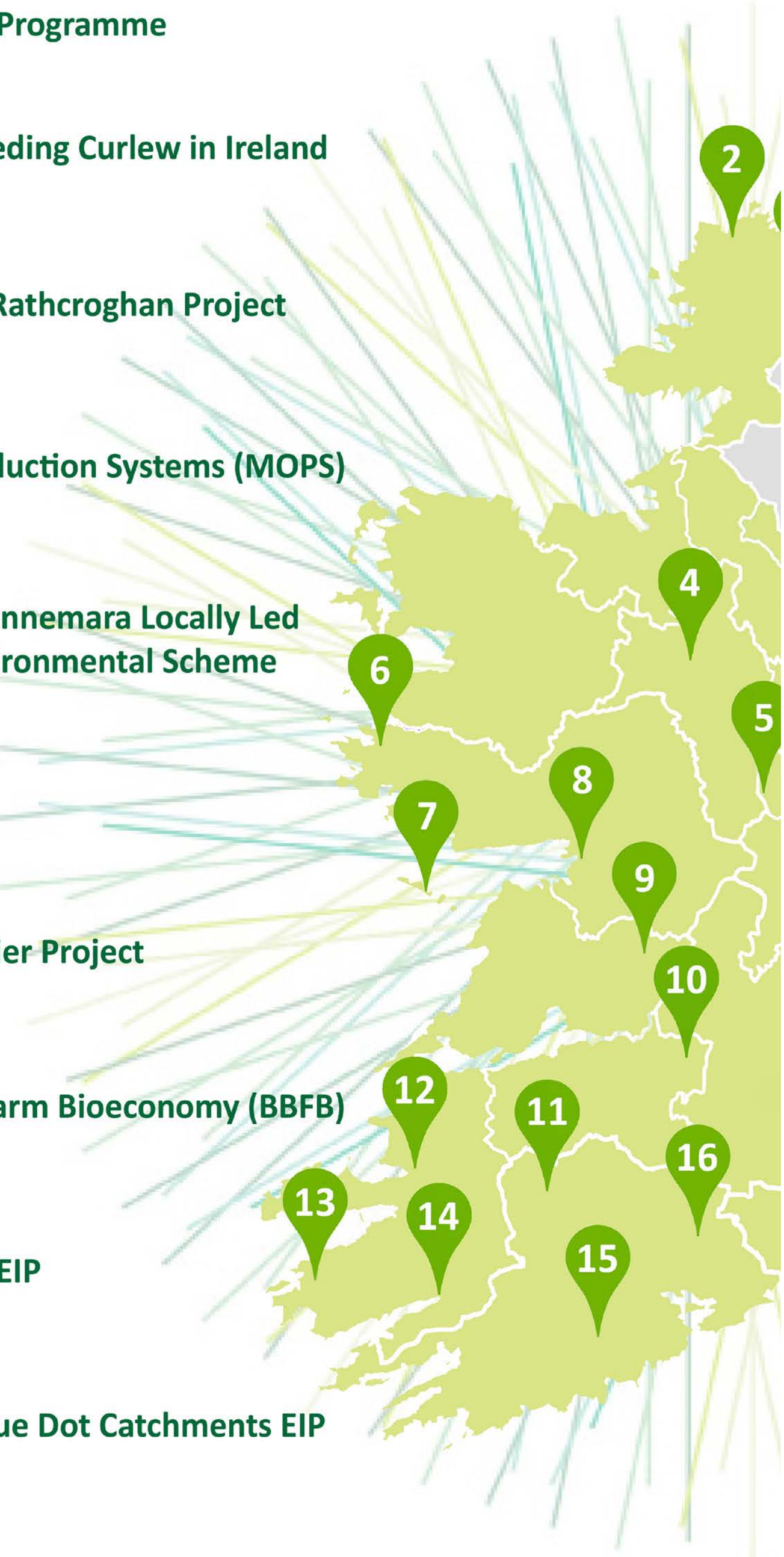
8 Hen Harrier Project

9 Biomass to Biochar for Farm Bioeconomy (BBFB)

10 Mulkear EIP

11 Duhallow Farming for Blue Dot Catchments EIP

12 Biorefinery Glas



* The location points for each EIP-AGRI Operation
however the Operational Groups, in most cases a
indication of 'Geographical Location' for each gro
Database on the National Rural Network (NRN) we

P-AGRI
al Groups

The European Agricultural Fund for Rural Development: Europe investing in rural areas

National Rural Network

Small Biogas Demonstration Programme 23

DANÚ Farming Group 22

Sustainable Uplands Agri-environment Scheme (SUAS) 21

Enable Conservation Tillage (ECT) 20

Blackstairs Farming Futures 19

Duncannon Blue Flag Farming and Communities Scheme EIP 18

Protecting Farmland Pollinators 17

Biodiversity Regeneration in a Dairying Environment (BRIDE) 16

Ovi Data 15

Pearl Mussel Project 14

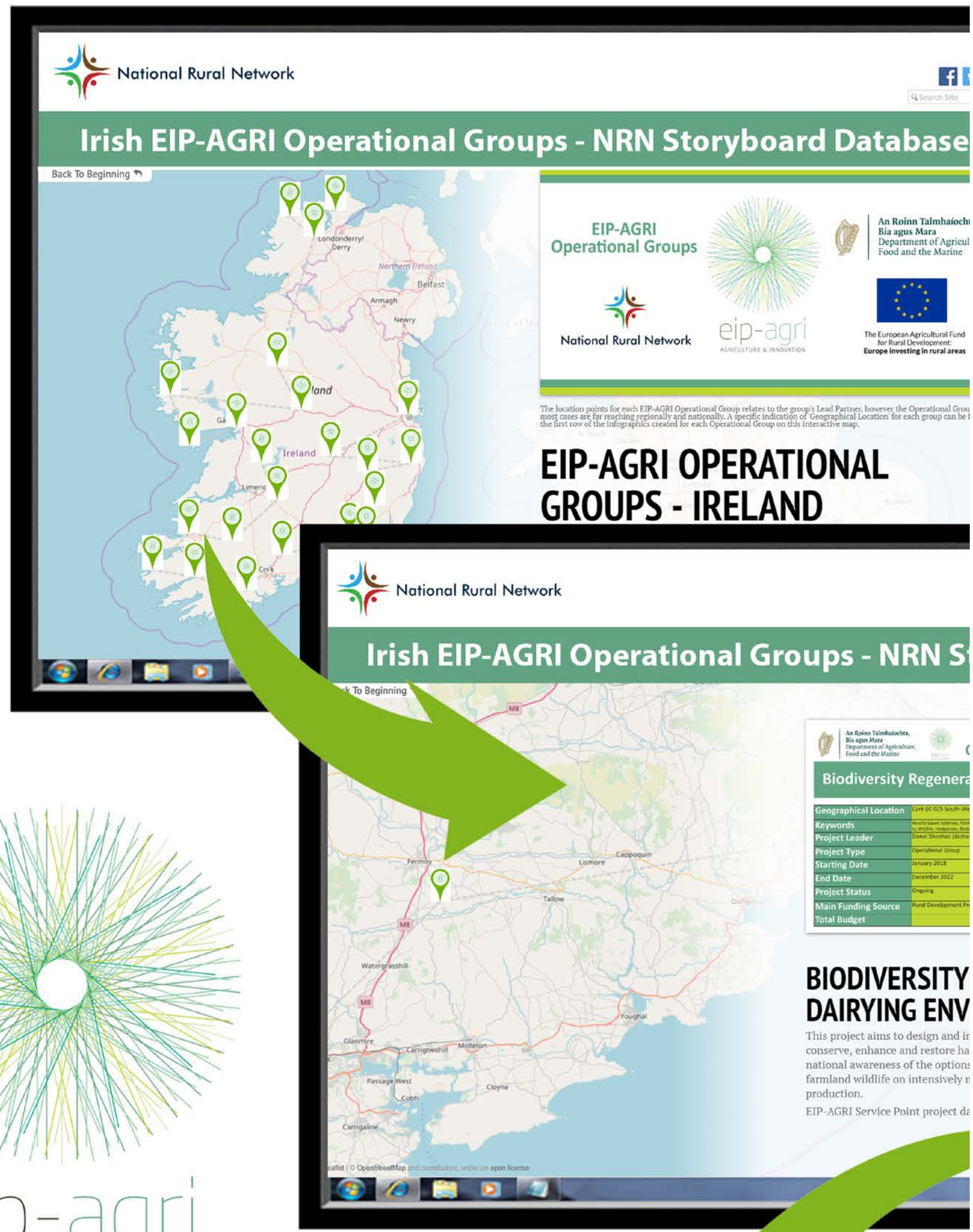
MacGillycuddy Reeks EIP- 13

al Group Project relates to the group's Lead Partner, are far reaching regionally and nationally. A specific up can be found in the EIP-AGRI Project Storyboard bsite, and also on the EIP-AGRI Service Point website.

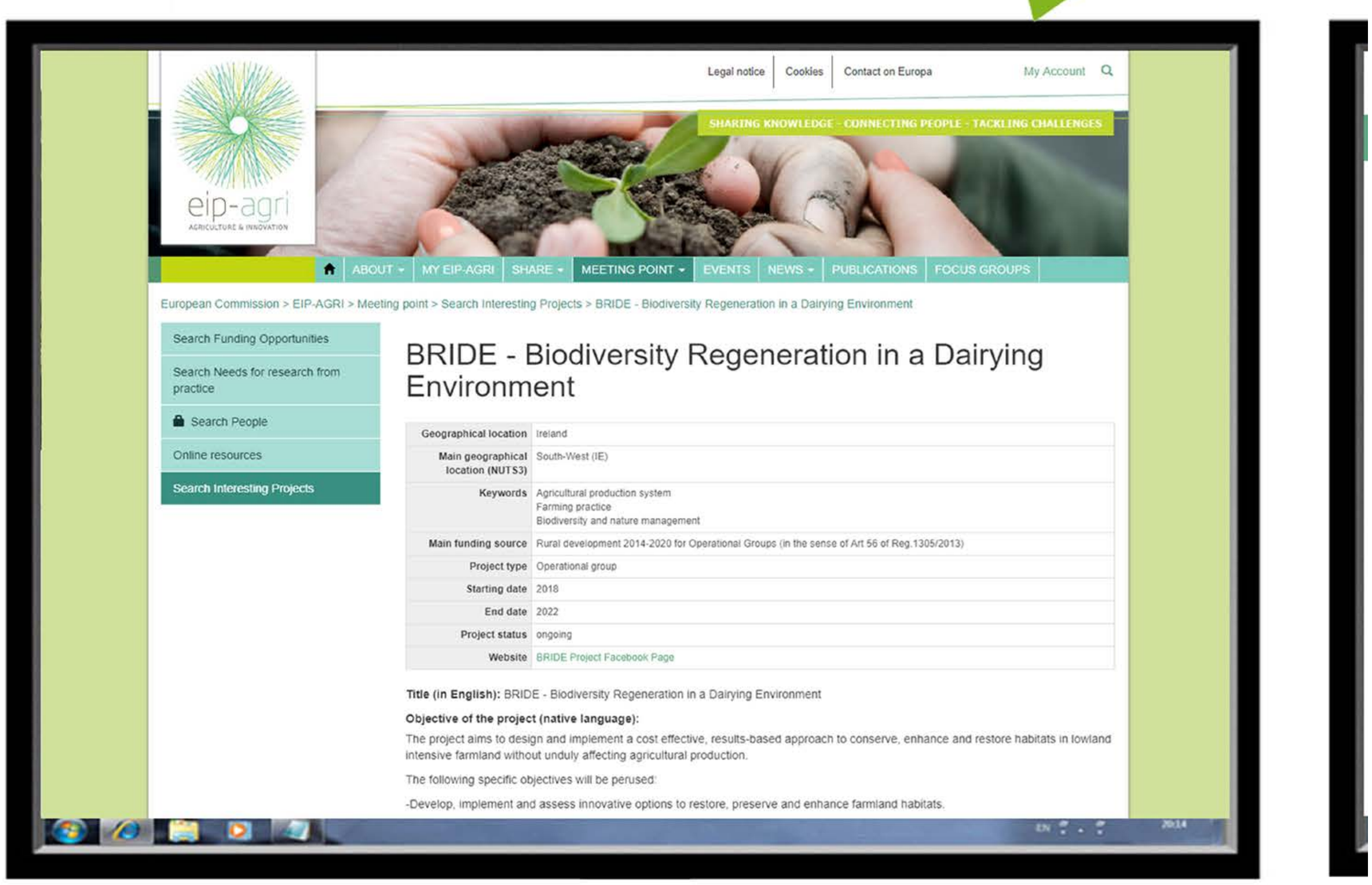
eip-agri AGRICULTURE & INNOVATION

Infographic designed and produced by Dr Shane Conway (NUI Galway/NRN)

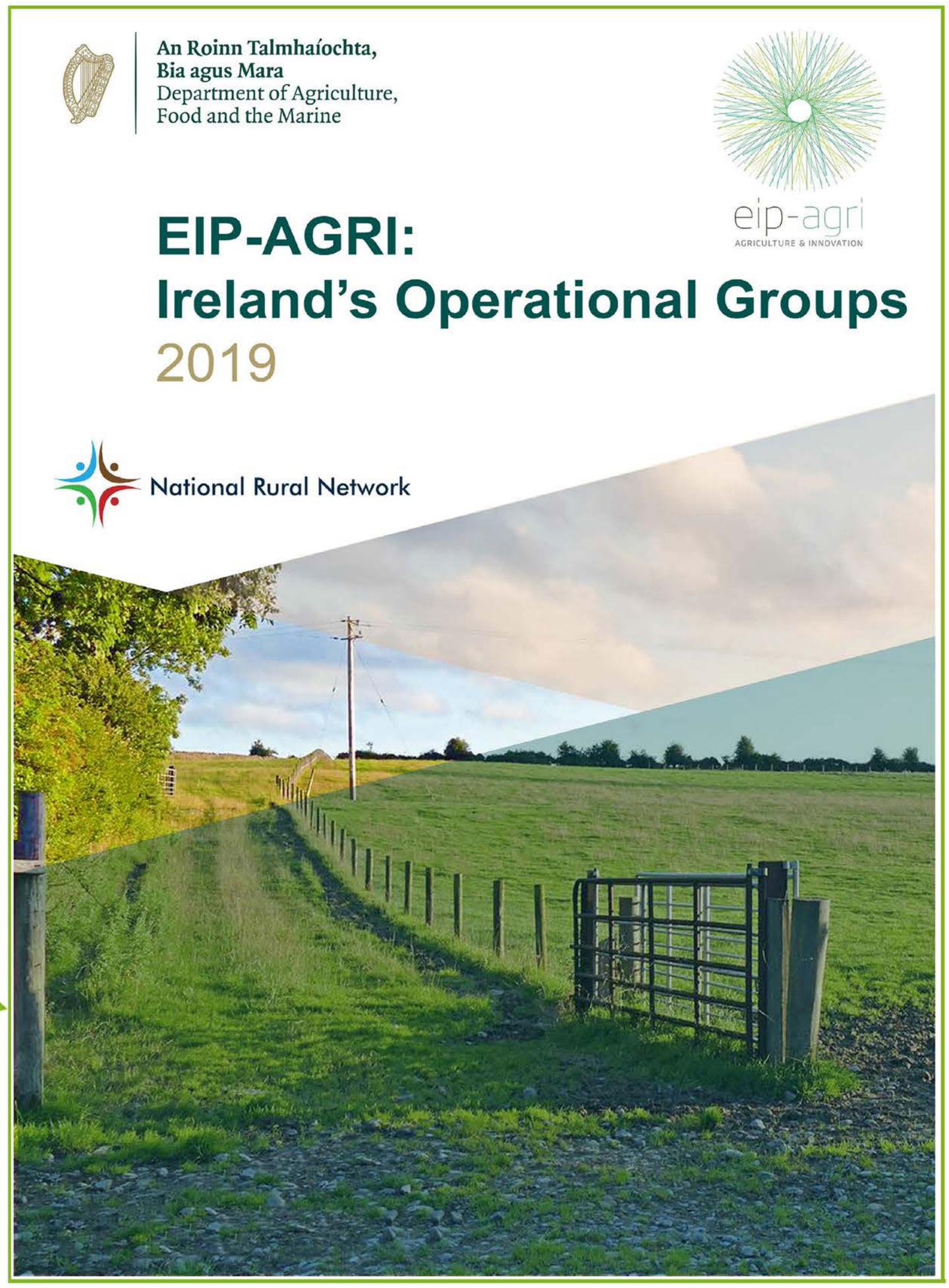
Irish EIP-AGRI Operational Group 'One-Stop-Shop' NRN Storyboard Project Database



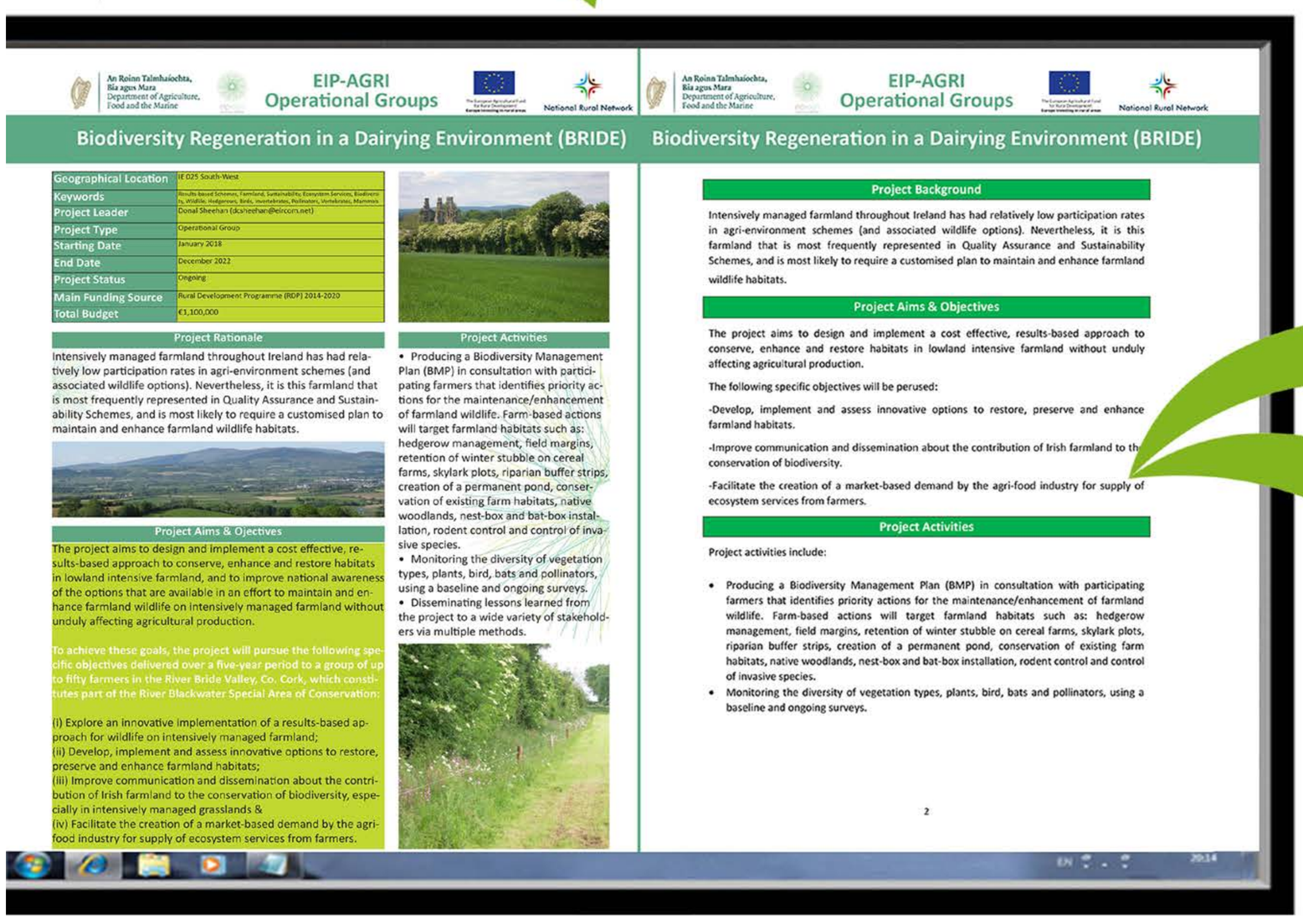
eip-agri
AGRICULTURE & INNOVATION



EIP-AGRI Service Point Project Database



NRN Operational Group Project Booklet



NRN Operational Group Poster/Abstract

Project Social Media

Notes

Prepared by the National Rural Network team at NUI Galway on behalf of the Department of Agriculture, Food and the Marine

Complied and designed by Dr. Shane Conway, Postdoctoral Researcher at NUI Galway and the National Rural Network.

To cite this publication: Conway, S.F. and Farrell, M. (2020) Multi-Actor Perspectives: EIP-AGRI Guest Blogs – Rural Development Programme (RDP) 2014-2020, National Rural Network, Department of Agriculture, Food and the Marine.

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

The European Agricultural Fund for Rural Development:
Europe investing in rural areas

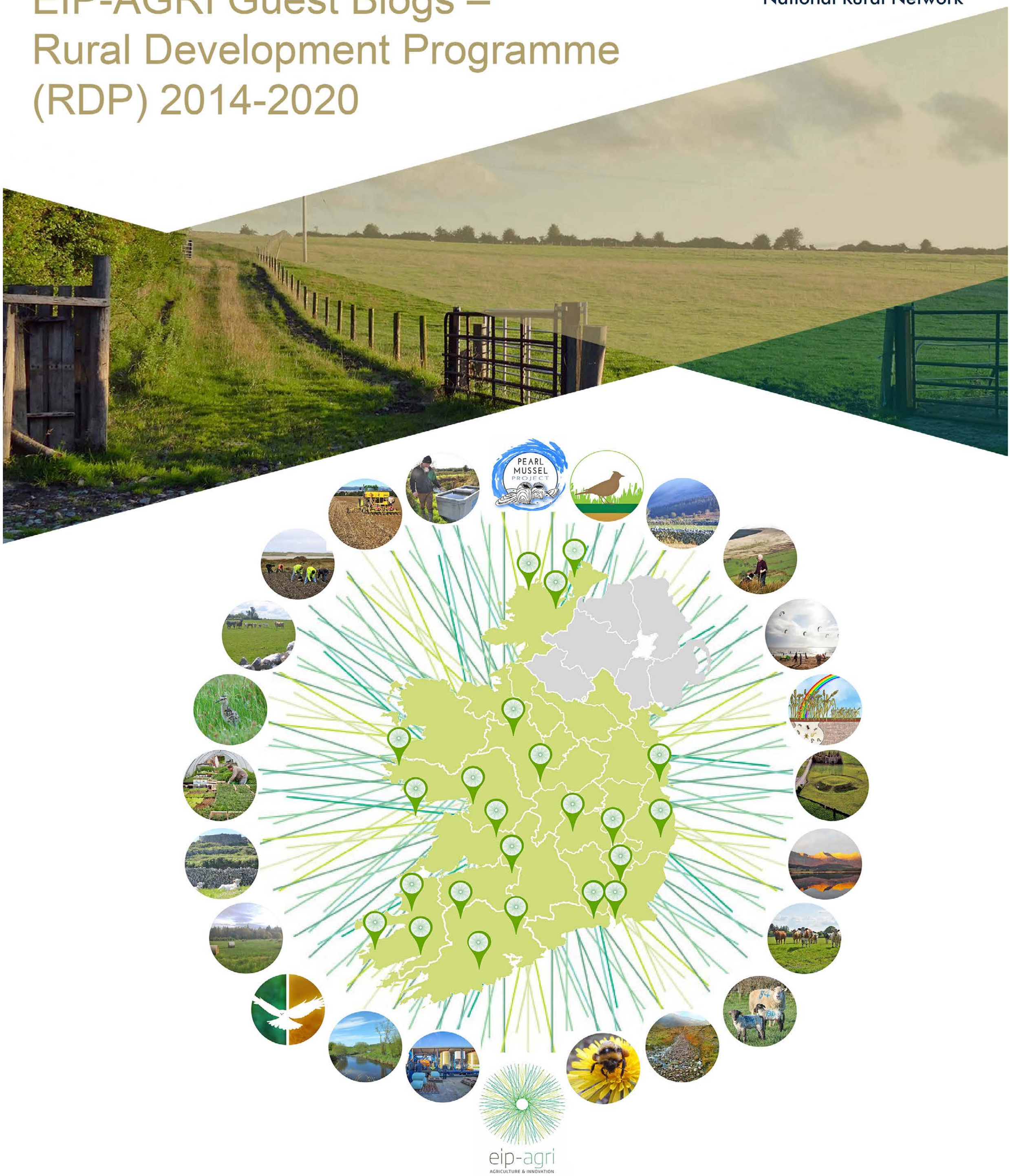
Ireland's European Structural and Investment Funds Programmes 2014-2020
Co-funded by the Irish Government and the European Union

National Rural Network

Multi-Actor Perspectives:

EIP-AGRI Guest Blogs – Rural Development Programme (RDP) 2014-2020

National Rural Network



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

The European Agricultural Fund for Rural Development:
Europe investing in rural areas

Ireland's European Structural and Investment Funds Programmes 2014-2020
Co-funded by the Irish Government and the European Union

NUI Galway
OÉ Gaillimh