Project number: 6572
Funding source: Department of Agriculture, Food and The Marine

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Project dates: Jul 2013 - May 2017

Understanding and facilitating farmer's adoption of technologies

Key external stakeholders:

Advisors, livestock farmers, scientists, specialists, policy makers

Practical implications for stakeholders:

This project generated new research knowledge on grassland management technology adoption usable by policy makers and Teagasc specialists and also an end-user co-designed grassland extension template for use by public and private sector advisors.

- The policy/extension recommendations are that tailored knowledge dissemination may assist in greater uptake of management practices among dairy and drystock farmers.
- Understanding resources capacities and the priorities/goals of different clusters of farmers and the varying levels of constraint felt by farmers with regards to their ability to adopt the Spring Rotation Planner or paddock grazing is important to optimise use of key grassland management practices.
- Important capacity building happened during the project as advisors were trained in the use of a novel extension resource created within the project for use within group based extension settings such as discussion groups.

Main results:

- A typology of beef and dairy farmers based on environmental, economic, social and technological performance was developed.
- Nationally representative surveys of beef and dairy farmers identified attitudinal constraints to the adoption of key grassland management practices.
- An extension tool to help optimize the use of grassland management practices was co-designed by farmers and advisors.
- Public and private sector advisors were trained in the use of the extension tool.

Opportunity / Benefit:

The research results are widely published and end-users (public and private advisors) can also access the co-designed flexible extension template at https://www.teagasc.ie/media/website/about/farm-advisory/ManagingGrass.pdf Some Teagasc and dairy processor advisors were trained in the use of the template.

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Collaborating Institutions:

NUI Galway and the Centre for Participatory Strategies (private sector)

Teagasc project team:	Dr. Kevin Heanue (PI) Dr. Áine Macken Walsh John Hyland Evgenia Micha Jessica McKillop Paul Rush
External collaborators:	Anne Lyons, NUI Galway Tomas de Brun, Centre for Participatory Strategies Mary de Brun, Centre for Participatory Strategies

1. Project background:

As beef and milk production accounts for almost 69% of agricultural output at producer prices (DAFM, 2011) and considering Ireland's competitive advantage lies in low-cost grass-based systems, this project set out to improve understanding of farmers' use of grassland technologies and management practices at different performance levels, and through a process of participatory research and training, improve the capabilities of advisors and farmers to improve the adoption of such technologies on farms.

2. Questions addressed by the project:

- How can we improve our understanding of the economic, environmental and social performance of livestock farmers and relate this understanding to the implementation of best management practices?
- How can we address a knowledge gap around the reasons for the non-adoption of key management practices by livestock farmers?
- How can we co-design, through a PLA process with farmers, scientists, specialists, advisers and graphic designers, a set of extension tools to inform group-based extension methods such as discussion groups?
- What are the policy and extension focused recommendations for grassland management practices?

3. The experimental studies:

This applied research project used a mixed methods approach.

- Principal Component and cluster analysis was used to carry out statistical analysis of secondary data from the Teagasc National Farm Survey to create farm performance typologies.
- Attitudinal primary data on key grassland management practices – paddock grazing for drystock farmers and the use of the Spring Rotation Planner for dairy farmers - was collected through the implementation of two nationally representative surveys of farmers which were analysed using the Theory of Planned Behaviour.
- Other primary data collection, which fed into the co-design of flexible extension tools by farmers, scientists and advisors and subsequently training for advisors in the use of those tools, was generated through a Participatory Learning in Action (PLA) methodology implemented through focus groups and workshops.

4. Main results:

- A typology of Irish dairy farms containing 3 clusters, 'Productive', 'Developing' and 'Weak' was developed based on farm performance data on profitability, environmental efficiency and social integration derived from the Teagasc National Farm Survey (NFS).
- Nationally representative surveys of beef (n=382) and dairy (n=256) farmers found that a sense of resource constraint is a limiting factor in the adoption of paddock grazing among beef farmers and the Spring Rotation Planner (SRP) among dairy farmers.
- These results identified the importance of resources capacities and the priorities/goals of the different clusters of farmers and the varying levels of constraint felt by farmers with regards to their ability to adopt the SRP or paddock grazing. These findings need to be reflected in innovation support providers' services and programmes and approaches to farmers.
- The policy/extension recommendations arising from the results are that tailored knowledge transfer may assist in greater uptake of management practices among dairy and drystock farmers. The heterogeneity

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in attitudes of different types of farmers to the practices means that carefully planned communication, targeted at the different farmer types, can help encourage a positive change in farm management practices towards the SRP and paddock grazing respectively.

- Participatory Learning and Action (PLA) methods were used to understand how grass can be effectively and practically managed on beef, sheep and dairy farms and also to co-design a flexible extension methodology. Over 60 farmers and advisors were involved in 5 focus groups to co-design the extension template.
- Dissemination activity to key end users (Teagasc and dairy processor advisors) was embedded into the project through participation in co-design activities and training in 2 workshops. Advisors and specialists were involved in three PLA focus groups (December 2016 and January 2017) and participated in two days of training to practice the method in May & June 2017.
- As a result of these project activities, in addition to knowledge generation the project explicitly focused on building human capability and knowledge mobilisation through the participatory and training activities, particularly in relation to grassland management.

5. Opportunity/Benefit:

- The typologies developed in this project are a tool to assist policy makers in identifying patterns in farm performance with a view to formulating more targeted policies, and to help agricultural innovation support service providers to better target their services and programmes. The results indicate a clear distinction between "good" and "weak" performers, and the positive relationship between the economic, environmental and social performance of Irish dairy farms is evident.
- The extension template generated by the project is new. It is a research-informed (grassland science) technique that is sociologically designed to be engaged with positively by, and 'user friendly' to, farmers. Advisors and specialists, from Teagasc and the dairy cooperative sector, received specialist training in the method and are using the method. It is freely available from https://www.teagasc.ie/media/website/about/farm-advisory/ManagingGrass.pdf .

6. Dissemination:

Main publications:

John J. Hyland, Kevin Heanue, Jessica McKillop, Evgenia Micha (2018) Factors influencing dairy farmers' adoption of best management grazing practices, *Land Use Policy* 78: 562–571

John J. Hyland, Kevin Heanue, Jessica McKillop, Evgenia Micha (2018) Factors underlying farmers' intentions to adopt best practices: The case of paddock based grazing systems, *Agricultural Systems* 162: 97–106 https://authors.elsevier.com/c/1WX15,70zHVXiw

Evgenia Micha, Kevin Heanue, John J. Hyland, Thia Hennessy, Emma Jane Dillon and Cathal Buckley (2017) Sustainability levels in Irish dairy farming: a farm typology according to sustainable performance indicators, *Studies in Agricultural Economics*, 119: 62-69, https://doi.org/10.7896/j.1706

Kelly, E, Heanue, K., O'Gorman, C. and Buckley, C. (2016) High rates of regular soil testing by Irish dairy farmers but nationally soil fertility is declining: Factors influencing national and voluntary adoption, *International Journal of Agricultural Management,* 5, 4: 106-114, https://doi.org/10.5836/ijam/2016-05-106

Open access resources:

Teagasc (2017) Managing Grass: a group facilitation guide, https://www.teagasc.ie/media/website/about/farm-advisory/ManagingGrass.pdf

Popular publications:

Macken-Walsh, A. (2017) The Influential Farm Adviser, Rural Connections, The European Rural Development Magazine*, European Network for Rural Development*, Spring 2017

Macken-Walsh, A. (2016) Influencing Farmers' Decisions: a sociologist's view. Invited keynote presentation to the 5th European Forum for Farm and Rural Advisory Services (EUFRAS) meeting / 55th IALB conference, June 2016

Macken-Walsh, A. and O'Dwyer, T. (2016) *Discussion Groups: Five Key Ingredients for Success*, Irish Farmers' Journal, April 2016.

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Micha, E., and Heanue, K. (2015) *Profiling farm systems according to their sustainable performance: a case study of the Irish dairy and livestock sectors,* 89th Agricultural Economics Society Conference, Warwick, UK, 13-15 April 2015

Micha, E., Heanue, K., Dillon, E and Hennessy, T. (2015) *Identification and Classification of Irish Beef Farming Systems: A Multivariate Analysis of Sustainability Indicators*, 8th Annual Conference of the EuroMed Academy of Business, Verona, Italy, 16 September 2015

Heanue, K., (2015) A farmer perspective: Farm level practice adoption is more than a binary activity, *European Seminar on Extension and Education 2015,* April 29th, Wageningen University, Netherlands.

Macken-Walsh, A., O'Reilly de Brún, M., de Brún, T., Beecher, M., Kelly, P., Horan, B., Creighton, P. (2017): AgileTECH: a co-designed extension resource for managing grass at farm-level. https://www.researchgate.net/publication/318211865_AgileTECH_an_extension_resource_for_managing_grass_at_farm-level?channel=doi&linkId=595cf9020f7e9b3aefade297&showFulltext=true

Macken-Walsh, A., Connolly, K., Gibson, M., Heanue, K., McCarthy, D., O'Donoghue, C., Watson, C. (2015) Teagasc's eProfit Monitor: rationale, farmer uptake, and prospects, Teagasc internal report, March 2015.

Other:

Macken-Walsh, A., Connolly, K., Gibson, M., Heanue, K., McCarthy, D., O'Donoghue, C., Watson, C. (2015) Teagasc's eProfit Monitor: rationale, farmer uptake, and prospects, Teagasc internal report, March 2015.

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