

FARMING FOR NATURE

THE ROLE OF
RESULTS-BASED PAYMENTS



EDITED BY
EILEEN O'ROURKE & JOHN A. FINN

FARMING FOR NATURE

THE ROLE OF
RESULTS-BASED PAYMENTS



EDITED BY

EILEEN O'ROURKE & JOHN A. FINN

CONTRIBUTORS

Andy Bleasdale ● Amanda Browne ● Dolores Byrne

Padraig Cronin ● Brendan Dunford ● John A. Finn

Kathryn Finney ● Caitriona Maher ● Patrick McGurn

James Moran ● Derek McLoughlin ● Gráinne Ní Chonghaile

Richard O'Callaghan ● Barry O'Donoghue

Eileen O'Rourke ● Sharon Parr ● Paul Phelan

First published in 2020 by
Teagasc and National Parks and Wildlife Service (NPWS)

Teagasc
Johnstown Castle, Wexford, Y35 TC97, Ireland
www.teagasc.ie

National Parks & Wildlife Service
90 North King Street, Smithfield, Dublin 7, D07 N7CV, Ireland
www.npws.ie

© The authors and contributors, 2020

ISBN 978-1-84170-663-4

British Library Cataloguing in Publication Data
An entry can be found on request

Library of Congress Cataloging in Publication Data
An entry can be found on request

All rights reserved. Without limiting the rights under copyright reserved alone, no part of this publication may be reproduced, stored in or introduced into a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior written permission of both the copyright owner and the above publisher of this book.

Design and setting: edit+ www.stuartcoughlan.com
Cover design: edit+ www.stuartcoughlan.com
Typeset in Adobe Garamond Pro

Printed in Ireland by Think Print & Design



An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

CONTENTS

Contributors	7
Glossary	11

1 Farming for Nature: Result-based Agri-Environment Schemes Eileen O'Rourke and John A. Finn	12
--	----

2 Overview of European Agri-Environment measures with emphasis on a Result-based Approach Eileen O'Rourke	24
---	----

3 Farming for Conservation in the Burren Brendan Dunford and Sharon Parr	56
--	----

4 Farming for Conservation on the Aran Islands Patrick McGurn, Amanda Browne, Gráinne Ní Chonghaile	106
---	-----

5 The KerryLIFE freshwater pearl mussel conservation project Richard O'Callaghan, Pádraig Cronin and Paul Phelan	148
--	-----

6 The Results-based Agri-Environment Payment Scheme (RBAPS) Pilot in Ireland Dolores Byrne, Derek McLoughlin, Caitriona Maher, Kathryn Finney	184
---	-----

7 The National Parks and Wildlife Service (NPWS) Farm Plan Scheme Andy Bleasdale and Barry O'Donoghue	214
---	-----

8 Policy Environment: Ecosystem services and the role of Results-based Payment Schemes (RBPS) in integrated approach to agricultural land use James Moran	250
---	-----

9 Synthesis and reflections on selected results-based approaches in Ireland John A. Finn	274
--	-----

Acknowledgements	304
-------------------------	-----



1

**FARMING FOR NATURE:
RESULT-BASED
AGRI-ENVIRONMENT SCHEMES**

EILEEN O'ROURKE & JOHN A. FINN

INTRODUCTION

Agricultural habitats cover approximately half the European Union (EU) territorial area and besides producing food and fibre, an estimated 50% of all species and several habitats of conservation concern in the European Union (EU) depend on agricultural management (Halada et al., 2011; Batárt et al., 2015). Given the long history of agrarian landscapes in Europe it is not surprising that many species of plants and animals have adapted to anthropogenic ecosystems that require the maintenance of traditional low-input agricultural practices. As a result of both intensification and abandonment, farmland biodiversity has been in steep decline since the second half of the 20th century (Stoate et al., 2009; Donald et al., 2006; ECA, 2015). The implementation of a number of European and United Nations conservation conventions, such as the Habitats and Birds Directives, and the UN Convention on Biological Diversity, along with the billions of Euros spent on EU agri-environment-climate programmes, have failed to halt this decline. Agricultural production is expected to greatly increase in the coming years with calls for a doubling in food supply by 2050, in order to meet the demands of an increasing human population and for biofuel production (Godfray et al., 2010; Tilman et al., 2011; Tschardt et al., 2012; IAASTD, 2009; Foley et al., 2011). The demand for increased food production may be counterbalanced to some extent by a reduction in

food waste, improved crop genetics, increasing yields and dietary changes; however, global agricultural expansion and intensification to meet a net increase in demand for food, along with the abandonment of naturally disadvantaged farmland (often of high nature value), appears almost inevitable. How we meet the world's future food security and sustainability needs, while at the same time reducing agriculture's environmental footprint, is one of the greatest challenges of the 21st century.

Agri-environment schemes (AES), implemented under the Common Agricultural Policy (CAP) provide the policy framework for sustainable agriculture in Europe, as well as providing the largest source of funding for practical nature conservation in the EU. AES have been in existence in the EU for over thirty years, but their ecological performance and cost effectiveness to date has been very mixed (Kleijn and Sutherland, 2003; Finn et al., 2009). They have often been seen more as a source of farm income support rather than the means of delivering environmental goals. Conventional management, or action-oriented, AES schemes have been criticised for a number of reasons, including poor targeting, lack of payment differentiation, short-termism, inadequate monitoring and failure to inspire behavioural change among participating farmers (ECA, 2011; Burton and Schwarz, 2013). In more recent times, there has been a call to integrate an ecosystem services approach into agri-environment programmes, along with a shift in emphasis from an action-based to a result-based approach, which would link payments to delivery of a desirable environmental outcome.

Result-based AES schemes reframe conservation as a “new form of production” rather than a positive by-product of agriculture (Wynn-Jones, 2013:77). A result-based approach is also challenging, with gaps in the scientific knowledge that link agricultural practices to biodiversity and other ecosystem services outcomes at appropriate spatial scales, along with an increased risk for land managers. Improved scientific knowledge is only part of the solution; the delivery of cost effective agri-environment-climate programmes is also inherently social and political. Result-oriented AES require a cultural change in the way farmers view the environment and engage with policy on the ground, along with a governance structure that is participatory and capable of adaptive management. Major changes in the design, implementation and governance of AES are needed to shift from the currently dominant ‘one-size-fits all’ AES to incorporating local knowledge and the recognition that management practices, and to a certain extent ecological outcome, are specific to location. The formulation of clear

objectives, robust science, along with farmers' engagement and ability to innovate are central to the delivery of pre-defined results, and ultimately to the fate of farmland biodiversity in the long term. Many different types of result-based payment schemes have been implemented across Europe, mostly on a case-by-case basis. One can distinguish between measures aimed at biodiversity conservation targeted at species and habitats of conservation concern, such as species rich grasslands, and those aimed at ecosystem services provision, which are often common habitat generalists, occurring in a wide variety of environments (Ekroos et al., 2014).

The principal aim of this book is to document, present the findings of and lessons learnt from a collection of innovative case-studies of the best Irish locally led result-based agri-environment schemes to date. Many of these projects started out as demonstration European Life projects, with the Burren Programme (Chapter 3), going on to win the joint 'Best Ever European Life' project in 2017. The book aims to drill down into the actual practicalities of designing and delivering result-based agri-environment schemes, within the larger framework of 'farming for conservation'. The core of the book and its major contribution is the collection of case studies, which situate the farming systems and the local environmental assets, their level of priority and the threats they face. They provide sufficient detail to help others see how the general principles of a Locally Led Results-based Approach (LLRBA) were implemented in the case study areas: for example, by providing actual farm plans and scoring sheets, as well as detailing governance mechanisms, the role of advisory services, the choice of indicators, monitoring details and the relationship between results and payment. While acknowledging the specificity of place, the case-studies have wider applicability, especially within the European Union that shares a common model of agriculture and a common policy framework. We also acknowledge that the results are not confined solely to ecological parameters, because in the delivery of LLRBA and nature friendly farming, one needs to build links between farming systems and the social and economic lives of the communities embedded in these places. Much of European biodiversity and its cultural landscapes require active management.

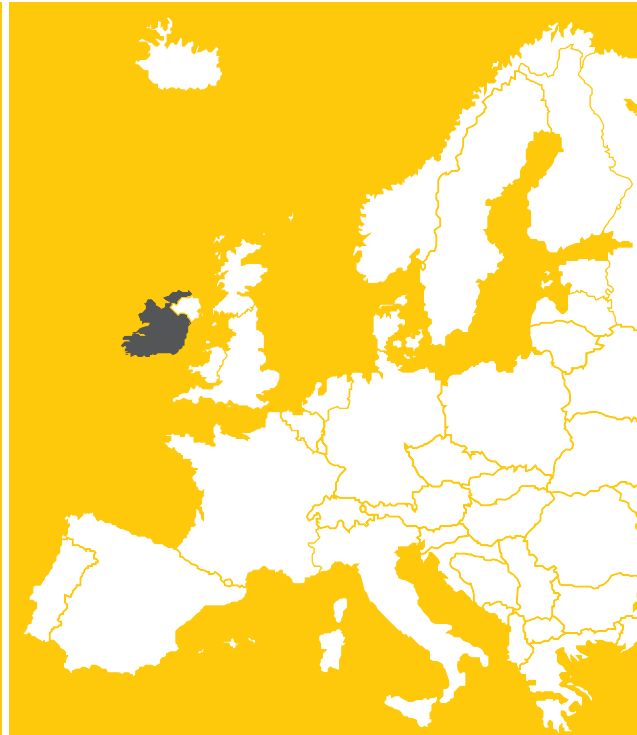
The book is intended for an international audience of agri-environmental practitioners; however, it is not a handbook or instruction manual. For example, it could be used by an NGO to support evidence for the feasibility of a locally led result-based approach; read by a policymaker to demonstrate examples and case studies; and used as a working example to assist a

practitioner in their own efforts to design a new LLRBA. The introductory chapter (Chapter 2), provides a critique of EU agri-environment policy and the closing chapters (Chapters 8 and 9) also consider the policy context and reflect on lessons learnt and where we go from here. Thus, they position the case studies within a larger academic and policy context. The book has clear research and policy relevance in the area of agriculture, environment, sustainability and rural development. It is born out of close collaboration between practitioners and academics.

The book offers a comprehensive overview of locally led result-based agri-environment case-studies, programmes and policies in operation in Ireland. It is largely structured around five case studies, and we invited the authors to reflect on the following themes in the presentation and discussion of their case study material:

- Why was your project needed, and how did it originate?
- How were the objectives identified and agreed upon?
- How were farmers selected for participation?
- How did you develop and use evidence-based, causal relationships, and how did you select and use indicators to represent these relationships?
- How did you develop suitable indicators linked to farming practices, and upon which result payments are based?
- Did the biodiversity targets for species rich grasslands require the maintenance of traditional management strategies and/or the development of major innovative practices? What management changes, if any, did the farmers make to their farming system? Did the project encourage innovation?
- How did the project/programme measure and monitor environmental performance?
- How did you calculate the payments to farmers, and how were payments related to results?
- Did the project have a reference or control site, i.e. what were the results measured against?
- Did you include a mixture of action-based and result-based approaches in your project or programme?

THE BOOK OFFERS
A COMPREHENSIVE
OVERVIEW OF LOCALLY LED
RESULT-BASED
AGRI-ENVIRONMENT
CASE-STUDIES,
PROGRAMMES AND
POLICIES IN OPERATION
IN IRELAND. IT IS LARGELY
STRUCTURED AROUND
FIVE CASE STUDIES ...



- What arrangements did you make to provide specialist advice for participant farmers?
- Has there been an increase in environmental awareness and motivation of farmers towards environmental protection? Has the project promoted long-term behavioural change among the farmers?
- What risks did the farmers perceive to be associated with the result-based agri-environment programmes, and how do they calculate transaction costs?
- Were participant farmers enrolled in other agri-environment schemes at the same time they were participating in your programme?
- What are the institutional arrangements for the roll-out of result-based agri-environment programmes?
- What were the social co-benefits of the project? And how did the project reinforce the social-capital around farming for conservation in the wider community?

THE STRUCTURE OF THE BOOK

In Chapter 2, Eileen O'Rourke provides a critical overview of European CAP agri-environment policies to date. She introduces the concept of public goods and ecosystem services, and goes on to debate the advantages and disadvantages of both action-based and results-based approaches to the design of agri-environment schemes.

Chapter 3, by Brendan Dunford and Sharon Parr, provides detail on the evolution and design of the first locally-led result-based agri-environment programme in Ireland – The Burren Programme. With over twenty years' experience on the ground, this is far more than just an agri-environment scheme. It is a highly adaptive pioneer programme that applies the concept of 'farming for conservation' in a very high nature value landscape - the Burren. Building on the research and lessons learnt from an initial PhD and subsequent European Life project, it now works with over 300 farmers and forms part of a national programme, funded under Ireland's Rural Development Plan. Not only does the programme prioritise 'payment by results' but it is also deeply social and emphasises its local embeddedness and the central role played by farmers in the management of their natural heritage. The objective is to give farmers a better sense of ownership of the conservation agenda, and to reward those who deliver clearly defined and ambitious environmental outputs. The chapter outlines the design and delivery of the Burren Programme – from habitat targeting and the development of farm plans to the field scoring system, monitoring of results, measuring impacts and payment calculations; to the role and training of farm advisors along with the scientific, technical and administrative support provided by the project team. It is clear that the principles underpinning the development and delivery of the Burren Programme can be applied elsewhere.

THE OBJECTIVE IS TO GIVE FARMERS A BETTER SENSE OF OWNERSHIP OF THE CONSERVATION AGENDA, AND TO REWARD THOSE WHO DELIVER CLEARLY DEFINED AND AMBITIOUS ENVIRONMENTAL OUTPUTS

Chapter 4, by **Patrick McGurn, Amanda Browne and Gráinne Ní Chonghaile**, leaves the mainland of Ireland and applies principles of farming for conservation and LLRBA to the Aran Islands. The objectives of AranLIFE may be similar to those of the Burren Programme, but the project's design is adapted to the specific challenges of the Aran context, with its small fragmented land holdings, scrubbed up access roads and widespread land abandonment. The project set out to respond to local farmers' identified issues in the management of the islands landscapes, species and habitats. The chapter provides scientific detail on the Aran habitats of priority conservation value and the linked farming practices, in particular grazing management, necessary for their maintenance. The project design, the choice of indicators, field scoring sheets, results validation and payment system are all clearly outlined. The project has also worked on increasing public awareness of the biological importance of the islands and the role that agriculture plays in maintaining it.

Chapter 5, by **Richard O'Callaghan, Pdraig Cronin and Paul Phelan**, takes the 'farming for conservation' concept to the Kerry uplands within the context of the EU KerryLife project aimed at the conservation of the freshwater pearl mussel. The project developed a range of result-based and incentivised measures to better manage the lowland and upland portions of forty hill farms in the Blackwater and Caragh river catchments, necessary to support the conservation of the critically endangered freshwater pearl mussel. Measures related to drainage, riparian protection, stocking density, nutrient and forestry management. The design and lessons learnt for this pilot project will now be rolled out within the structure of the national Pearl Mussel Project EIP, which includes results-based payments.

Chapter 6, by **Dolores Byrne, Derek McLoughlin, Caitriona Maher and Kathryn Finney**, describes the RBAPS (Results-based Agri-Environment Payment Scheme) pilot project that developed and trialled results-based methods for five agriculture-dependent biodiversity targets in County Leitrim and the Shannon Callows in Ireland. These targets, including species-rich grasslands, breeding wader habitats and species-rich floodplain meadows, are all designated as conservation priorities at a national or international level. Scoring systems were developed using assessment indicators which reflect agricultural practices and determine the quality of the biodiversity. Management guidelines were provided to the thirty-

five farmers who participated in the project, to support biodiversity delivery. Payment rates were calculated to reward good ecological quality. Where farming practices alone didn't improve the biodiversity status, complementary actions were also introduced to increase the quality of the habitat. The key elements to the success of the results-based payments approach - such as selecting priorities and spatial targeting, robust assessment indicators and the necessity of farmer training and ecological advisory support, are among the important lessons from this ambitious and innovative pilot project.

Chapter 7, by Andy Bleasdale and Barry O'Donoghue, provides an excellent overview of the current National Parks and Wildlife Service Farm Plan Scheme. The main purpose of the scheme is to promote a focussed, targeted and innovative approach to farming for habitats and species of conservation concern in some of Ireland's most important biodiversity areas. Prescriptions are tailored for the habitats or species found on the farms in question, with flexible and adaptive solutions to maintain, create and enhance these habitats and species. Payment rates differ across the range of plan types. By trialling and enacting these innovative prescriptions, valuable lessons were learned which in turn informed advice to the Department of Agriculture, Forestry and the Marine (DAFM) on measures that could be delivered under national, co-financed Agri-Environment Scheme (GLAS). An overview of the different plan types and lessons learned is presented. The future of the scheme, in a broader national context, is also discussed.

In Chapter 8, James Moran, brings the discussion back to the policy environment within which results-based approaches are introduced. He considers the environmental priorities that need to be better addressed in international policymaking, and the role that agriculture can play in providing a range of ecosystem services and disservices. He reflects on the opportunities and challenges in developing efficient payments for an ecosystem services approach. He charts innovative solutions and a road map for the inclusion of locally adapted results-based payments in a more integrated approach to multifunctional agricultural land use in Ireland and the EU.

Chapter 9, by John Finn, is a synthesis chapter that collates and restates the key findings, lessons learnt and future challenges in operationalising a locally led results-based approach (LLRBA) within national and European contexts. Amidst the diversity of approaches that characterises LLRBA, John distils some of the common lessons across the multiple case studies, and illustrate general principles from the specific experiences. He consider some of the challenges associated with LLRBA, from the perspective of farmers, policymakers and ecologists involved in their design and monitoring. He discusses the complementarity that may be achieved between action-based and result-based hybrid approaches. In programmes characterised by innovative performance-related payments for biodiversity, he considers the different approaches to structuring the relationship between payment and performance. The social context of LLRBA is also very important, and the relevance of local engagement by communities and extension services is acknowledged. Most importantly, he asks - where do we go from here?

There is growing interest in and a strong policy imperative to develop results-based approaches to address the current climate and biodiversity challenge. We hope that this book provides practitioners and policymakers with insights and shared experiences that can inform the design, implementation and effectiveness of result-based agri-environment approaches to deal with this new reality.

REFERENCES

- Batáry, P., Dicks, LV., Kleijn, D., Sutherland, WJ.** (2015) The role of agri-environment schemes in conservation and environmental management. *Conservation Biology* 29(4), 1006-1016.
- Burton, RJF and Schwarz, G.** (2013) Results-oriented agri-environmental schemes in Europe and their potential for promoting behavioural change. *Land Use Policy* 30, 628-641.
- Donald, PF., Sanderson, FJ., Burfield, IJ., van Bommel, FPJ.** (2006) Further evidence of continent-wide impacts of agricultural intensification on European farmland birds, 1990- 2000. *Agriculture, Ecosystems and Environment* 116, 189-196.
- Ekroos, J., Olsson, O., Rundlöf, M., Wärzold, F., Smith, HG.** (2014) Optimizing agri-environment schemes for biodiversity, ecosystem services or both? *Biological Conservation* 172, 65-71.
- ECA, European Court of Auditors** (2011) Is agri-environment support well designed and managed? Special Report No. 7, 2011. Luxembourg.
- ECA, European Court of Auditors** (2015) State of Nature in the EU. Technical Report No. 2/2015, p.178. Luxembourg.
- Finn, JA., Bartolini, F., Bourke, D., Kurz, I., Viaggi, D.** (2009) *Ex post* environmental evaluation of agri-environment schemes using experts' judgements and multi-criteria analysis. *Journal of Environmental Planning and Management* 52, 717-737.
- Foley, JA., Ramankutty, N., Brauman, KA. et al.,** (2011) Solutions for a cultivated planet. *Nature* 478, 337-340.
- Godfray, HCJ., Beddington, JR., Crute, IR., et al.,** (2010) Food security; the challenge of feeding 9 billion people. *Science* 327(5967), 812-818.
- Halada, N., Evans, D., Romão, C., Peterson, J-E.** (2011) Which habitats of European importance depend on agricultural practices? *Biodiversity and Conservation* 20(11), 2365-2378.
- IAASTD** (International Assessment of Agricultural Knowledge) (2009), *Agriculture at a Crossroads, Global Report*. Washington, Island Press.
- Kleijn, D., Sutherland, WJ.** (2003) How Effective are European agri-environment schemes in conserving and promoting biodiversity? *Journal of Applied Ecology* 40, 947-969.
- Stoate, C., Báldi, A., Beja, P., Boatman, ND., Herzon, I., van Doorn, A., de Snoo, GR., Rakosy, L., Ramwell, C.** (2009) Ecological impacts of early 21st century agricultural change in Europe – a review. *Journal of Environmental Management* 91: 22-46.
- Tscharntke, T., Clough, Y., Wanger, TC., Jackson, L, Motzke, I., Perfecto, I., Vandermeer, J., Whitebread, A.** (2012) Global food security, biodiversity conservation and the future of agricultural intensification. *Biological Conservation* 151, 53-59.
- Tilman, D., Balzer, C., Hill, J., Befort, BL.** (2011) Global food demand and the sustainable intensification of agriculture. *Proc. Nat. Acad. Sci.* 108 (50), 20260-20264.
- Wynn-Jones, S.** (2013) Connecting payments for ecosystem services and agri-environment regulation: An analysis of the Welsh Glastir Scheme. *Journal of Rural Studies* 31, 77-86.

Agricultural habitats cover approximately half the European Union (EU) and an estimated 50% of all species and several habitats of conservation concern in the EU depend on agricultural management. Reversing the loss of European biodiversity is clearly dependent on the conservation of farmland biodiversity.

Results-based approaches are the focus of a growing discussion about improved biodiversity conservation and environmental performance of EU agri-environmental policies. This book outlines lessons learned from a collection of Irish case studies that have implemented results-based approaches and payments for the conservation of farmland habitats and species. The case studies include prominent projects and programmes: the Burren Programme, AranLIFE, KerryLIFE, the NPWS Farm Plan Scheme and Result-Based Agri-environmental Payment Schemes (RBAPS) project.

This work is intended for an international audience of practitioners, policymakers and academics interested in results-based approaches for the conservation of biodiversity and the provision of ecosystem services.



An Roinn Cultúir,
Oidhreacht agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

Teagasc www.teagasc.ie
National Parks & Wildlife Service www.npws.ie
ISBN 978-1-84170-663-4

