

FARMING FOR NATURE

THE ROLE OF
RESULTS-BASED PAYMENTS



EDITED BY
EILEEN O'ROURKE & JOHN A. FINN

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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

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**THE RESULTS-BASED
AGRI-ENVIRONMENT PAYMENT SCHEME
(RBAPS) PILOT IN IRELAND:
BACKGROUND TO THE RBAPS PILOT PROJECT**

**DOLORES BYRNE, DEREK MCLOUGHLIN,
CAITRIONA MAHER, KATHRYN FINNEY**

INTRODUCTION

Farming and nature are natural allies, a fact acknowledged by substantial European investment in agri-environment schemes (AES) over the past 30 years. However, as the condition of many habitats and species associated with agriculture continues to decline, especially important habitats and rare species, the efficacy of the conventional prescription-based model has come under scrutiny. Criticisms include the ‘one-size-fits-all approach’ where higher quality biodiversity is not recognised, lack of specific targeting, poor outcomes for the intended targets and inadequately resourced monitoring and evaluation.

An alternative is the results-based approach, where payments to farmers are directly linked to the quality of the biodiversity on their farms, thereby incentivising better biodiversity outcomes. Biodiversity quality is assessed through a scoring assessment which is specifically designed for the chosen biodiversity target. Because the biodiversity target must be present in order to deliver the outcome, results-based measures are in effect self-targeting and such schemes have the ability to fit local conditions and circumstances. Similar to prescription-based schemes, the results-based approach needs to be supported by farmer (and advisor/inspector) training, with advice on optimal delivery and tailored farm plans, along with appropriate scheme monitoring and evaluation. However, the farmer is free to choose the methods most suited to them and their farming conditions to deliver the desired result.

Results-based approaches should be the preferred method to incentivise delivery of higher quality biodiversity and associated ecosystem services from farmland. Assessing the ecological condition of the biodiversity target and making payments related to the condition is more reliable than broad prescriptions. Although there have been a number of European results-based schemes in operation over the past 25 years, widespread adoption of this approach (whether alone or in conjunction with an underlying prescription-based scheme), remains outside the norm in Member States. This reluctance to implement a wider roll-out of results-based approaches may be related to perceived barriers such as the assumption of higher costs than prescription-based schemes, that they only work in areas of very high quality or biodiversity importance and that they may be administratively burdensome to implement.

THE RBAPS PILOT PROJECT

To test how results-based agri-environment schemes could work over wider areas and in differing landscapes, the EU provided 70% funding for the **Results-based Agri-Environment Payment Scheme pilot (called RBAPS Pilot)** in Ireland and Spain, although this chapter focuses only on the Irish elements. The project ran from January 2015 to June 2018. Co-funding and support was provided by project partners, The Heritage Council, The Department of Agriculture, Food and the Marine, and Teagasc.

The specific objectives of the RBAPS Pilot project were to:

- Promote the design, development and use in rural areas of results-based remuneration schemes to conserve and enhance biodiversity;
- Increase the understanding of factors that contribute to the success or failure of such schemes;
- Identify opportunities and conditions for increasing the use of such schemes in the EU and in particular in the context of the Common Agricultural Policy (CAP);
- Explore the potential for such schemes to be applied widely in the rural countryside and beyond grasslands, *e.g.* for the protection and enhancement of pollinators, soil biodiversity;

- Demonstrate the potential of these schemes to have positive ecological outcomes by developing, testing and using widely applicable monitoring approaches;
- Promote and increase awareness and better understanding of the benefits of results-based remuneration schemes particularly within the rural community.

The project partnership was co-ordinated by the European Forum for Nature Conservation and Pastoralism (EFNCP), with the Institute of Technology Sligo, BirdWatch Ireland, the National Parks and Wildlife Service, High Nature Value Services Ltd. and Gestión Ambiental de Navarra. These partners have considerable expertise in high nature value farming and results-based schemes, including the Burren Programme, which currently has almost 400 enrolled farmers (Chapter 3).

The pilot regions were chosen in High Nature Value (HNV) farmland, and offered contrasting farming methods, climate and physical challenges. Each region focused on different biodiversity targets associated with grassland and perennial cropland, with the teams testing, monitoring and evaluating the developed scoring assessments (scorecards, guidance and methodologies) across the full spectrum of quality. The scoring assessments were also tested by the participating farmers, farm advisors and with the Department of Agricultural, Food and the Marine (DAFM). The two pilot regions in Ireland, County Leitrim and the Shannon Callows, (Figure 6.1) are summarised in this chapter.



Figure 6.1
RBAPS Pilot study site locations in Leitrim and Shannon Callows

The RBAPS Pilot project was administered by locally-based teams and comprised four full-time staff members and a project co-ordinator from the EFNCP. The team members were ecologists with considerable experience of working with farmers in High Nature Value areas and had a strong level of experience in the local agricultural practices. Each team designed and implemented their respective scorecards (for assessment of ecosystem quality) and capital works programmes, and were responsible for administering payments to farmers in that pilot area.

Importantly, the project in each pilot area was also supported by the invaluable input and advice from local stakeholder advisory groups, which comprised local farmers, representatives from farming organisations, government bodies, and farm advisors. Thus, during the first year of the project, local farmers were instrumental in the design and development of the measures, which were then further refined during two years of farmer contracts; overall, this ensured that the measures were fully adapted to the pilot areas.

The RBAPS Pilot regional teams developed a five-stage approach (Figure 6.2) for the development, costing, implementation and monitoring of results-based agri-environment measures locally targeted to their region. This approach was applied to five selected biodiversity targets in Ireland and one in Navarra, Spain.

Figure 6.2
Five stages for the design and delivery of results-based agri-environment schemes



To facilitate testing of the developed measures, farmer contracts were implemented for two years in each pilot region, with associated advice and supports from the RBAPS Pilot teams. Payments to farmers were primarily based on the quality of the biodiversity targets. In the Shannon Callows, non-productive investment payments (sometimes called capital works or supporting actions) were also included in the available measures. These incentivised farmers to undertake works which lead to improvements in the biodiversity target, which otherwise would not be carried out under normal farm management.

Because this was a novel scheme for all participant farmers, their attitudes, understanding and criticisms of the approach were explored through a series of systematic questionnaires and interviews, providing valuable insight into how results-based approaches could appeal to the wider farming community.

SELECTION OF BIODIVERSITY TARGETS

The first step in the scheme design involved selection of the biodiversity targets, *i.e.* the ecological benefit for which farmers are incentivised to manage their farmland. This is a very important step as the scoring system will be developed to reflect the quality of delivery for the selected target. Locally applicable biodiversity targets in the pilot regions were selected to reflect legislative requirements and conservation concerns, and obviously they must respond to agricultural practices, as is the case with any agri-environment scheme. Targets selected for testing were also those which could potentially be supported under current and future Agri-environment Climate Measure (AECM) regulations.

County Leitrim is characterized by small family farms, with stocking rates, net farm incomes and direct payment receipts that are all below the national average. Farm habitats encompass primarily grasslands with field boundaries, wetlands, scrub and woodland and upland habitats, mainly peatlands. Designated sites tend to be concentrated in uplands meaning much of the lowlands, including extensive areas of semi-natural grassland, fall outside of Natura 2000 protection. Existing biodiversity datasets and consultation with experts in the relevant national and regional government conservation bodies were essential for identifying and refining the potential biodiversity targets in the undesignated County Leitrim HNV farmland. As a range of grassland quality and conservation value is present, supporting a

variety of biodiversity, this broad species-rich grassland target was selected for measure development and testing. Such a target would also be more widely applicable within wider high nature value farmland settings. Spatial targeting was informed by Ireland's national semi-natural grassland survey to ensure the measure was trialled on a number of soil types.

Available data also indicated that County Leitrim is a stronghold for the marsh fritillary butterfly and this invertebrate species is associated with extensive farming practices on wet ground. A separate measure was tested for grassland and mosaic habitat suitable for this butterfly species. However, the decision was made to concentrate on assessing habitat provision rather than the butterfly population as the latter is subject to natural fluctuations outside of individual farmers' control.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland, and one in which there is least disturbance of natural wetland processes. The River Shannon Callows was selected as a pilot area as it has a dual Natura designation, including the River Shannon Callows Special Area of Conservation (SAC) and the Middle Shannon Callows Special Protection Area (SPA), and extensive areas of farmed land supporting a range of habitats and species of conservation importance.

Although the focus for biodiversity targets in the callows was on the qualifying interest (QI) special conservation interest (SCI) of the Natura 2000 sites, consideration was taken of their ability to be delivered through a results-based approach. The species-rich flood meadows along the callows are a QI which can be directly influenced by farming and for which results-based assessments could be trialled. Targeting of this measure in the pilot

Figure 6.3

High diversity of plant species is evident in the meadows of the Shannon Callows



prioritised larger callow meadows to maximise uptake by participants for the purposes of developing quality assessments over as wide a range of meadows as feasible (Figure 6.3).

Corncrake is also listed as an SCI, but it is now functionally extinct in the area and was therefore not suitable for inclusion in the pilot. Looking outside of the SCI's, the selection of potential biodiversity targets was guided by the Prioritized Action Framework priority species, identifying breeding waders (snipe, lapwing, redshank and curlew) which are present in the callows. Spatial targeting for the Breeding Wader measure was based on the areas of highest concentrations of breeding pairs (using the most recent population data) (Figure 6.4). To be eligible for entry into the Breeding Wader measure, plots were required to be grazed by cattle during the breeding season machinery operations and inappropriate grazing intensities were not allowed and trees could not be planted. As part of the measure, non-productive investments could be undertaken by farmers (and paid for in addition to the per hectare payment), an example of a hybrid results-based scheme model.

As was the case for marsh fritillary in County Leitrim, available datasets for the callows indicated it is a national stronghold for breeding whinchat, which are associated with the species-rich flood meadows. Breeding curlew may also use these meadows. As these species were considered conservation priorities, a separate measure for ground-nesting birds was developed and provided as a top-up payment to the flood meadow measure, available to farmers where breeding was confirmed, and farmers complied with prescriptive mowing dates of after 15th July for curlew and after 26th July for whinchat - to take account of the different breeding periods of each species (Table 6.1).

Figure 6.4
The Shannon Callows system is of international importance for breeding waders, however numbers are in decline due to a variety of factors



Table 6.1.

SELECTED BIODIVERSITY TARGETS FOR THE RBAPS PILOT PROJECT

PILOT LOCATION	CHARACTERISTICS	SELECTED BIODIVERSITY TARGETS
County Leitrim, Ireland	Undesignated HNV farmland	Species-rich grasslands; Wet grassland and mosaic habitat suitable for the marsh fritillary butterfly <i>Euphydryas aurinia</i>
Shannon Callows, Ireland	Natura 2000 site (Special Area of Conservation & Special Protection Area)	Breeding wader bird habitat; Species-rich flood meadows; & Species-rich flood meadows with ground-nesting birds

DESIGN OF THE SCORING SYSTEM AND RESULTS INDICATORS

A common design approach was used to quantify the assessment of ecological quality across the two regions and five measures. The assessments relied on the use of results indicators which are proxies employed to quantify the quality of the biodiversity target. Measure specific result indicators were identified (either direct or indirect surrogates) and trialled for their fairness, robustness and reliability in assessing the quality of the farmland for the measure they were most suited to provide and to indicate general environmental condition. It was extremely important that the results indicators were both linked to the biodiversity target and feasible for the farmer to deliver.

The RBAPS Pilot scores were designed to reflect the variation in the quality of the selected biodiversity target which was assessed by totalling the points awarded for result indicators and translating into a scoring scale from 0 (very low) through to 10 (very high) (Table 6.2.) All RBAPS Pilot scorecards are available at www.rbaps.eu.

Table 6.2

THE 10-POINT SCORING SYSTEM USED IN RBAPS PILOT TO ASSESS THE QUALITY OF BIODIVERSITY TARGETS

BIODIVERSITY TARGET HEALTH RATING	LOW				MODERATE		GOOD		HIGH TO VERY HIGH		
RBAPS QUALITY SCORE	0	1	2	3	4	5	6	7	8	9	10

DESIGNING SCORING SYSTEMS WITH RESULTS INDICATORS FOR HABITATS

The scoring system developed for Species-rich Grassland and Species-rich Flood Meadow measures was divided into two sections: a) ecological integrity and b) threats and future prospects.

In both grassland measures, up to 60% of the available points were based on the number and cover of positive indicator plants (together termed ‘ecological integrity’), as these species are considered to represent grasslands that benefit from environmentally sensitive farming and with high potential to support wider biodiversity. When selecting positive indicator plants, those in national or regional Annex I habitat assessments for Article 17 reporting offer a good place to begin, for both designated and undesignated grassland habitat.

The list of positive indicator plants did not include those that are too small (i.e. mosses) or difficult to identify, or plants which may be confused with non-positive indicator species. Species which looked similar were grouped together (provided they are all positive indicators), e.g. all orchid species. Additional positive indicator species may also need to be added to ensure a range of habitat quality is represented, i.e. positive indicators for HNV grasslands were also used in County Leitrim. The cover (and not just the presence) of positive indicator plants is also assessed as species may persist when reduced or declining in a habitat in response to less than optimal past and current management.

Ecological integrity also assessed the cover of negative indicator plants (agricultural weeds) which can indicate that the grassland has had less than optimal management.

In the second section of the scoring assessment, result indicators quantified threats to current habitat condition such as extent of bracken, scrub and any damaging activities, as relevant to each pilot region. These threat indicators also highlight to the farmer those features or practices that might result in future failure to deliver a high-quality biodiversity target.

An example of a (simplified) scoring assessment for two species-rich grassland fields is shown for County Leitrim in Box 6.1.

BOX 6.1:

EXAMPLE OF GRASSLAND QUALITY ASSESSMENT FROM THE COUNTY LEITRIM SPECIES-RICH GRASSLAND MEASURE

Each result indicator comprises categories (e.g. on a scale of good to bad) which reflect the extent to which each individual result indicator is achieved. The example below showcases how the scoring system can distinguish between the quality of species-rich grasslands of two fields, Field A and Field B, entered into the County Leitrim Species-rich Grassland measure (Figure 6.5).

**SECTION A
ECOLOGICAL INTEGRITY**

Positive indicator plants are an excellent surrogate for measuring habitat (plant community) quality and also indicating the potential of the grassland to support pollinators, invertebrates and other wildlife. The higher the number and cover of positive indicator plants the higher the marks and the payment to the farmer. Field B is a species-rich dry hay meadow, which has a high number (15-20) and cover of positive indicator plants. Field A is cattle grazed pasture which has become dominated by soft rush, resulting in lower number (5-10) and cover of positive indicators (Table 6.3).

Negative indicators such as ragwort and creeping thistle can indicate sub-optimal management. Field A has little to no cover of negative indicators and scored full marks for this indicator. However, in Field B, there was a medium cover of perennial rye-grass, which has spread from silage which is fed to cattle in this field. As feeding silage is not optimal in a species-rich grassland, it will be clear to the farmer why they have not achieved full marks for this indicator. Note that this hay meadow was surveyed in detail in 2010 and again in 2016 as part of the ongoing national assessment of high-quality (Annex) grasslands. The surveys showed a decline in quality of the grassland due to the spread of perennial ryegrass and demonstrates the importance of this result indicator in the scoring assessment (Table 6.3).

Figure 6.5a & b Facing page from top: Field A is a wet grassland with very low level of grazing, which is becoming dominated by soft rush. Field B is a species-rich dry hay meadow, which is starting to decline in quality due to silage feeding on the grassland in autumn and winter. (Credit: Dolores Byrne).



**Table 6.3
EXAMPLES OF THREE RESULTS INDICATORS, THRESHOLDS AND POINTS, WHICH ARE SURROGATES FOR ECOLOGICAL INTEGRITY OF SPECIES-RICH GRASSLANDS**

NUMBER OF POSITIVE INDICATOR PLANTS:		
5-10	10-15	15-20
10 marks	20 marks	30 marks
COVER OF POSITIVE INDICATOR PLANTS:		
Low	Medium	High
10 marks	20 marks	30 marks
COVER OF NEGATIVE INDICATOR PLANTS:		
High	Medium	Low
-10 marks	0 marks	15 marks



SECTION B

THREATS AND FUTURE PROSPECTS

Along with evaluating the current ecological integrity, it is also prudent to assess any activity that may impact on the future delivery of the biodiversity target (Table 6.4). Results indicators assessed vegetation structure, which is an indication of the level of management (grazing or mowing, levels of dead plant litter), cover of encroaching scrub, and damage to water, soil and vegetation. As it was undergrazed (low management level), the vegetation structure in Field A was not optimal for a range of biodiversity and had high levels of dead plant litter which will negatively affect the establishment of positive indicators in plants. Conversely, Field B is mown annually and vegetation structure/plant litter levels were in the optimal range. However, some damage was noted to the soils in the grassland around the location of a round feeder, and therefore the field was assessed as having ‘some damaging activity’ occurring.

The interaction of the results indicators is very important in establishing the ‘true’ ecological health of the grasslands. If the results indicators concentrate on ecological integrity alone, it limits the potential usefulness of the scoring system to bring about positive change in management practices which in the short or longer term will impact on the positive indicators, and hence on wider grassland biodiversity.

Table 6.4
EXAMPLES OF
RESULTS INDICATORS,
THRESHOLDS AND
POINTS USED TO
ASSESS FUTURE
PROSPECTS AND
THREATS IN SPECIES-
RICH GRASSLANDS

CURRENT LEVEL OF MANAGEMENT:		
Too low (no signs of grazing and/or mowing)	Optimum	Too high (bare ground)
-10 marks	25 marks	-20 marks
ARE THERE ANY DAMAGING ACTIVITIES:		
High level of damage	Some damaging activity	None
-40 marks	-20 marks	0 marks

DESIGNING SCORING SYSTEMS WITH RESULTS INDICATORS FOR HABITATS WHICH SUPPORT BIODIVERSITY TARGET SPECIES

When species are the target of the measure, the result indicators need to reflect the habitat suitability for the species (e.g. vegetation structure for breeding waders) and spatial targeting of the measure needs to be based on the distribution of the species.

Previously developed habitat scoring assessments can be used as the basis of scoring assessments where habitat for a target species is the desired outcome. For example, in the Marsh Fritillary Habitat measure in County Leitrim, the Species-rich Grassland measure scorecard was adapted through refinement of the number and type of positive indicator plants and by the addition of a specific indicator that assessed habitat suitability for the larval stage of the marsh fritillary. It was targeted at areas where there were previous records of marsh fritillary and/or suitable habitat. The habitat quality rather than the population of marsh fritillary itself was selected as the biodiversity target, as the population is influenced by factors outside of farmers' control such as weather condition. Providing high quality habitat offers the opportunity for butterfly population maintenance and expansion, whilst also providing additional benefits for other associated grassland biodiversity (Figures 6.3).

Similarly, in the Shannon Callows, an additional measure for ground-nesting birds was offered to those farmers participating in the species-rich flood meadow measure, when the presence of curlew and/ or whinchat was confirmed (during monitoring) in that breeding season. Under this measure, the same scoring indicators were used as in the species-rich flood meadow measure. A delay of mowing dates until after 15th July for curlew and after 26th July for whinchat were prescribed under this measure, resulting in an additional payment to farmers above that which they could get for species-rich flood meadow alone. The measure for Species-rich Flood Meadow with Ground-nesting Birds aimed to reward farmers for both the protection of ground-nesting birds and the quality of species-rich meadows.

In the Breeding Waders measure, specific results indicators of habitat suitability and condition were developed as the wader species are faithful to their breeding sites. Therefore, the consistent provision of good quality habitat is a central element in achieving population stability or growth. Result indicators for the Shannon Callows breeding wader habitat assessed the vegetation structure, extent and suitability of feeding areas for chicks and

presence of scrub and trees (which may provide habitat for predators).

Simplified examples of result indicators used for assessing the future prospects for ground-nesting wader bird habitat are provided in Table 6.5 and are based on proxies for assessing grazing intensity management and damaging activities.

Table 6.5

EXAMPLE OF RESULTS INDICATORS, THRESHOLDS AND POINTS USED TO ASSESS FUTURE PROSPECTS AND THREATS FOR BREEDING WADER BIRDS IN THE SHANNON CALLOWS

TUSSOCK STRUCTURE:	No Tussocks	Rare tussocks (suitable for nesting and chick cover)	Abundant tussocks (suitable for nesting and chick cover)
	0 marks	5 marks	15 marks
RUSH COVER:	High (> 50% of dense rush) no longer suitable for breeding	Medium (some dense rush, or a lot of sparse rush)	Optimum (none, or few very sparse tussocks)
	-5 marks	5 marks	15 marks
CHICK FEEDING HABITAT:	Damaged / removed	Sufficient but plot could be improved by increasing the amount / quality	Ample features of appropriate slope, wetness and vegetative cover.
	-30 marks	10	15

DEVELOPING, COSTING AND SETTING PAYMENT RATES TO RECOGNISE AND REWARD QUALITY AND NON-PRODUCTIVE INVESTMENTS TO ACHIEVE HIGHER BIODIVERSITY TARGETS

In prescription-based schemes, participants typically receive a single payment rate for all land enrolled in a measure. The results-based approach links tiered payment levels to the quality of the biodiversity target, as assessed by the scoring system.

ESTABLISHING PAYMENT RATES

To establish payment rates, the principal threats to the biodiversity targets were considered (Table 6.6) and the associated cost (including income foregone and additional costs) of achieving the biodiversity target was calculated in line with World Trade Organisation and Common Agricultural Policy regulations. Up to 10% transaction costs were also included under each measure.

Table 6.6

SUMMARY OF THREATS IN EACH REGION

REGION	COUNTY LEITRIM	SHANNON CALLOWS
PRIMARY THREAT	Conversion to forestry	Intensification
SECONDARY THREAT	Intensification	Abandonment (rare)
TERTIARY THREAT	Abandonment	–

The payment structure (Table 6.7) aimed to achieve a balance between incentivising farmers to deliver the highest possible score in their particular farm setting, while giving a clear signal that the delivery of higher quality also results in a higher reward. In the pilot, payment rates for the low-medium quality scores were set at a level sufficient to cover costs of farmers' participation in the scheme, while creating payment increments to incentivise further progression towards delivery of higher quality outputs. Tiered payment levels provide a financial incentive to the farmer to deliver the highest quality environmental product in their particular farm setting.

Table 6.7

PAYMENT RATES (Euros per hectare)**ACROSS EACH OF THE RBAPS PILOT MEASURES**

BIODIVERSITY TARGET HEALTH RATING	SCORE	LEITRIM SPECIES-RICH GRASSLANDS	BREEDING WADER HABITAT	SPECIES-RICH FLOOD MEADOWS	SPECIES-RICH FLOOD MEADOW / GNB
Low	0	–	–	–	–
	1	–	€43	–	–
	2	–	€86	–	–
	3	–	€129	–	–
Moderate	4	–	€172	€100	
	5	€110	€215	€160	€210
Good	6	€170	€258	€220	€270
	7	€230	€301	€280	€330
High to very Good	8	€280	€344	€330	€380
	9	€320	€387	€370	€420
	10	€350	€434	€400	€450

DECIDING ON 'PURE' OR HYBRID MODELS

In some instances, in order to create, maintain or rehabilitate biodiversity features, an initial investment may be required to enhance the biodiversity outcome. This is a non-productive investment for actions over and above what is covered in the costing of annual results-based payments and their inclusion gave rise to blended/hybrid model of delivery rather than 'pure' results-based where payment is solely based on quality as assessed by the scoring system. Both types of RBAPS were trialled in the pilot.

For the Breeding Wader measure in the Shannon Callows, ongoing and 'normal' farm management was not sufficient to deliver high quality breeding habitat. For instance, wet features suitable for feeding chicks, may not be present in otherwise suitable breeding habitat. Therefore, a hybrid model was implemented as part of the breeding wader measure to co-fund non-productive investments that could be undertaken by farmers if/when necessary (and paid for in addition to the per hectare payment). Both the prescriptive management (i.e. restricted stocking rates and machinery operations during the breeding season) and non-productive investments complemented the results-based payments and together aimed to deliver high quality breeding habitat. Payments were partly linked to quality and partly to capital works and/or prescribed management that could enhance the biodiversity targets.

In Shannon Callows species-rich flood meadows, long-term fertiliser use has resulted in species-poor (low scoring) meadows with depleted seed bank. Adjusting the timing of the mowing of the meadow (or other annual management) is unlikely to benefit these meadows, particularly when they have been of poor quality for a number of years and the seed bank of the soil is also depleted. If the conservation importance is considered sufficient to justify the additional costs, substantial restorative, non-productive investment actions (such as spreading seeds or green hay) could be undertaken to increase the floral diversity of the meadow. In this instance, including the cost of this action in annual payments to all participants fails to adequately remunerate the (few) farmers needing to carry out the restoration works and needlessly increases the annual cost of the measure. Therefore, in this case, it works best as a separate, once-off non-productive investment payment with the aim of achieving higher biodiversity target outcomes.

In County Leitrim, the pilot tested a 'pure' results-based scheme which solely linked payments to the quality of biodiversity target, without payment

for complementary actions or any specific management as implementation of normal farming practices was considered sufficient to deliver the targets. However, it became obvious during the pilot that the very low grazing intensity which provides the highest quality marsh fringing habitat is not sufficient for farmers to meet their obligations under cross compliance (e.g. with regards to encroaching scrub levels). The provision of funding for relevant and necessary non-productive investments may incentivise interest in a measure for species with specific habitat specifications, which may be more difficult to achieve under normal farming practices.

In conclusion, when considering whether a RBAPS measure should operate under a hybrid or pure results-based model, a cost-benefit analysis should be undertaken in each case, weighing any potential conservation benefit of non-productive investments against the costs of required actions. Additionally, the cost of non-productive investments in relation to the area based-payments, and the frequency with which it is necessary, are important to consider in order to produce an equitable and attractive measure, and it is important to keep separate the two types of cost in the payment structure. If non-productive investment payments are available, it is essential that the farmers fully understand when, where and why they may be appropriate and necessary so that best value for financial and time investment is achieved. Adequate advice and training need to be provided for the farmer and/or contractor in order to carry out the work appropriately and with regard to relevant legislation, particularly within designated sites.

IMPLEMENTATION OF RBAPS PILOT FARMER PARTICIPATION AND AREA UNDER AGREEMENT

For the purposes of the RBAPS Pilot, a call for participant farmers was made through various media sources (including local newspapers and radio) in selected areas where selected biodiversity targets were confidently expected to occur. Applicant farms were checked for suitability and for potential double payments with other agri-environment schemes (lands entered to other agri-environment schemes were excluded from entering the RBAPS Pilot). For the scheme, all participant farmers were required to be in receipt of Basic Payment.

A total of 35 farmers participated in the scheme in Ireland in 2017, entering over 260 hectares of land across 143 fields (including enclosed

fields and unenclosed plots (see Table 6.8). Participant farmers represented the wider farmer demographic, with a mixture of ages, part and full-time farmers and farming enterprises commonly found in the surrounding landscape. For most of the measures being trialled, land parcels with a broad range of scores were included in the pilot.

Table 6.8

DETAILS OF PARTICIPANT NUMBERS AND AREAS UNDER AGREEMENTS IN 2017, WITH 2016 FIGURES IN BRACKETS

MEASURE / REGION	NUMBER OF FARMERS	AREA UNDER AGREEMENT (HECTARES)	NUMBER OF FIELDS/PLOTS	AVERAGE FIELD/ PLOT SIZE (HECTARES)
Species-rich grassland (SRG)	13 (13)	137.81 (121.26)	72 (62)	1.91 (1.96)
Marsh fritillary habitat and SRG	2 (2)	28.74 (14.39)	36 (20)	0.80 (0.72)
County Leitrim total/average	13 (13)	166.55 (135.65)	108 (82)	1.54 (1.65)
Breeding Wader Habitat	7 (5)	61.35 (29.55)	9 (5)	6.81 (5.91)
Species-rich Flood Meadow	13 (11)	23.94 (18.97)	18 (13)	1.33 (1.46)
SRFM with ground nesting birds	6 (7)	16.44 (13.54)	8 (9)	2.05 (1.05)
Shannon Callows total/average	22 (18)	101.73 (62.06)	35 (27)	2.9 (2.30)
Total	35 (31)	268.28 (197.71)	143 (109)	1.2 (1.16)

TRAINING AND GUIDANCE TO ACCOMPANY THE SCORING ASSESSMENTS

The provision of training and guidance is vital for the success of any agri-environmental scheme. In the RBAPS Pilot, annual training was offered by the project team to participating farmers over the two years of farmer contracts. A half-day classroom setting was used to present the scheme concept, its comparison with more familiar management-based schemes and the RBAPS Pilot scheme aims. For most participants, this was the first time that they received detailed insight into results-based agri-environment schemes, and so offered an opportunity to provide valuable feedback to the project team. Much of the interest and discussion tended towards future roll-out and the need for consistency from all those involved from farmers, agricultural advisors, inspectors/national departments through to auditors.

“This is a new way of looking at the land. Success will depend on the level of training and whether it will be any good for the land. It is a more farmer-friendly approach because every farmer has a different way of managing his farm”.

Farmer at RBAPS Pilot training

The classroom session was followed by a half-day of field-training (preferred by farmers) for each measure which focused on the use and understanding of the scoring assessment, the rationale for the results indicators and discussion on optimal management to achieve the best possible outcome (and payment). Each result indicator was demonstrated and the thresholds and associated points explained. For example, as part of training for the Species-rich Grassland measure, the positive indicator plants (flowers and leaves) were shown to participants and the cover of these plants (high, medium, low etc.) in fields was described. It was important to ensure that training covered the range of quality (i.e. score range) and main scenarios which would be encountered. This allowed farmers to establish an idea of ‘poor’, ‘medium’ and ‘good’ biodiversity quality and importantly demonstrated what the best product (and payment) looks like (Figure 6.6).

Advice from the project team was also given to farmers on non-productive investments which could potentially help achieve optimal conditions for the type of biodiversity their land was best suited to deliver.

Figure 6.6
RBAPS Pilot project
team member
and farm advisors
discussing the
Species-rich Grassland
measure, County
Leitrim



Most farmers participated willingly at the farmer training events, with some requesting additional training as they found it both helpful and enjoyable. A very important element of the training days was the opportunity for farmers in the scheme to meet and share their views on participation in the pilot with each other. This ‘farmer-to-farmer’ interface is considered an important element in roll-out, whereby the knowledge of how to achieve the best scores can be shared.

Farmers were asked to self-score their land after training, but many were initially reluctant to do so ahead of payments due to both a lack of confidence in correctly assessing individual indicators (*e.g.* identifying plant species) and a concern that incorrectly scoring their site may negatively impact upon their payment rate. Most of the farmers that did score their fields under the RBAPS Pilot did not vary significantly from project team score. The process of self-scoring ensured that the farmers become more familiar with the result indicators and thus the ecological components of the habitat; thus self-scoring was considered an invaluable part of the process irrespective of how accurate the farmers’ scores were. In addition, long-term behavioural change can be encouraged through better understanding of the result indicators and the relationship between management practices and ecological quality.

As it is envisaged that the roll out of any future RBAPS could be administered through a local farm advisory service, testing of the ecological assessment scoring system was undertaken with a number of agricultural advisors in each of the pilot areas. Primarily this was to determine how easy it is to understand and implement, and to identify any misunderstandings that may arise. This training was conducted as if the advisors were learning a ‘normal’ new RDP measure. This involved a one-day training session, similar to that held for farmers, with field- and classroom-based sessions, a second day when the farm advisors scored RBAPS Pilot sites using the relevant scorecards, followed by submission of a scheme evaluation. After their training, farm advisors were required to use the scoring assessments independently, in conjunction with the relevant RBAPS Pilot scoring guidance document. The farm advisors indicated that they found the scoring systems easy to understand but would need longer initial training, refresher courses and on-farm practice to feel more confident to assess such measures at field level. A minimum of one whole day per measure would be required on roll-out, and longer when the measure includes non-productive investments.

A range of guidance documents for farmers, farm advisors, external evaluators, auditors and anyone who needed to understand or use a measure were prepared to accompany the scorecards for each of the biodiversity measures. These documents, in addition to guidance to best practice management of the biodiversity targets are available on the RBAPS Pilot website (www.rbaps.eu).

BOX 6.2

FARMING IN THE SHANNON CALLOWS: FARMER PROFILE

BRENDAN AND MARETTI PILLION HAVE A BEEF AND SUCKLER FARM NEAR SHANNONBRIDGE, CO OFFALY IN THE SHANNON CALLOWS.

Nearly half of Brendan and Maretti's 78ha farm lies within the flood plain of the River Shannon. This land is known as 'Callow' land (derived from the Irish word *caladh* meaning river meadow), it floods regularly in winter and dries out in summer for use

as pasture or hay. However, the land can be under water for up to six months of the year and flooding can occur anytime depending on weather conditions. Summer flooding has become more prevalent in recent years.



“ Callow land is excellent grazing in summer, but you can never depend on it. It might flood and you could lose all your grass and hay

Brendan and Maretti participated in both the RBAPS Pilot Breeding Wader Habitat option and the Species Rich Flood Meadow Option. Brendan did have a full time off-farm business, however he only works part time at this now and concentrates more of his time on farming. He enjoys spending more time on his farm and likes to see the wildlife on his Callow land, even if *“it’s not the most productive land”*. He sees schemes such as these as a way to support farming on this land, alleviating the drive to try and intensify and increase productivity.

Like most farmers in the Callows and other extensively farmed areas, when asked what they know

or how they feel about the wildlife on their farm, they first appear not to have given it much thought. However, as conversation unfolds over a cup of tea, it is evident that not only do they know a lot, they also care deeply (lamenting its loss, where this has occurred). It appears the decades spent encouraging farmers to focus on productivity have led to an element of disconnection. That is why, in addition to providing support for biodiversity-rich areas, results-based agri-environment schemes are important for revaluing and reigniting the farmers’ love of wildlife on their farms.



BOX 6.3

FARMING SPECIES-RICH GRASSLAND IN COUNTY LEITRIM: FARMER PROFILE

LILY AND TOMMY MCPARTLAN FARM SUCKLER CATTLE NEAR DRUMKEERAN, COUNTY LEITRIM.

With average yearly rainfall in the region of up to 1250mm and slow draining clay and peaty soils, the challenges of farming in County Leitrim are familiar to Lily and Tommy McPartlan.

Their small suckler beef farm is a mixture of wet grassland, broad-leaved woodland and heath. Extensive cattle grazing throughout the year makes the most of the grazing available, and also creates a mixture of vegetation heights which is perfect for birds, butterflies and insects. No fertiliser is added to the land, as it's too costly and doesn't suit the wet land. Supplementary feeding of concentrates and hay is carried out only when considered necessary.

Before taking part in the RBAPS Pilot Species-rich Grassland and Marsh Fritillary Habitat measures, Lily and Tommy were aware of wildlife they'd commonly

see, such as squirrels, rabbits, hares and birds. They didn't know their farm supported the protected marsh fritillary butterfly. In fact, the project team found that the land is optimal for the fritillary and it holds one of the largest breeding populations in County Leitrim. From training provided as part of the RBAPS Pilot, Lily and Tommy are now able to recognise the butterfly and understand how their farm practices are providing shelter and food for this species.

As a consequence of low productivity and low farm incomes, some land in the local area has been afforested or has increased scrub cover up due to abandonment. Lily and Tommy feel that schemes such as RBAPS are vital to help farming communities and in particular to keep young farmers interested in farming.





**We never knew the butterfly was on the land.
We'd be happy to have a scheme that paid
us to farm for the butterfly**



CONTROL AND VERIFICATION OF BIODIVERSITY QUALITY

In the pilot project, scoring was undertaken by the project team, but it is envisaged that this would be performed by trained farm advisors or farmers on wider roll-out, with appropriate levels of verification on the ground. Independent verification of a sub-sample (10%) of the scoring systems was carried out during each of the two field seasons by HNVS Ltd., which operates the Burren Programme. The external evaluation examined the measures from both an ecological and administrative perspective, with particular emphasis on how it might be open to misinterpretation by farmers, advisors and auditors. These evaluations involved scoring plots under RBAPS Pilot agreements and evaluating the guidelines for administering the measures. This included extensive feedback on the structure of the scoring system and the associated guidelines. Where considered appropriate, scorecards and associated guidelines for scoring each measure were subsequently revised to incorporate the feedback received.

MONITORING AND EVALUATION

The monitoring stage had two main objectives. First, it served to assess the relationship between the RBAPS Pilot quality score and the associated result indicators, *i.e.* was there a significant positive correlation between the quality score and the chosen biodiversity target. Second, it assessed the impacts of the scheme on the biodiversity targets and in reaching the scheme objectives, although in the pilot project, this was constrained by the very short timeframe over which farmer contracts operated.

In all regions, positive correlations were found between the RBAPS Pilot quality score and the biodiversity target. Correlations were strongest where the result indicators were most directly linked to the biodiversity target, *e.g.* in the Shannon Callows Flood Meadow measure, the scoring assessment was mainly based on positive indicator plants, and had strong, positive and highly significant relationship with the target Annex I habitats supported by the flood meadows. Where the target is broader, *e.g.* species-rich grasslands in County Leitrim, some monitoring elements showed stronger correlations than others. It would also be expected that low correlations existed between some assessment indicators and the target biodiversity, such as indicators for

damaging activities, as these are early warning systems that detect threats to the biodiversity targets.

Once the strength of relationship between the scoring assessment (and results indicators) and biodiversity target has been proven and confidence in the scoring system is established, it is possible to reduce the requirement for more detailed ecological monitoring as the annual quality scores are in themselves indicators of the status of biodiversity target. This makes results-based payment schemes easier to monitor compared to prescription-based measures.

Monitoring also showed that the scheme did have positive impacts on certain biodiversity targets compared to non-participant (control) farms, although caution is required in the interpretation due to the small sampling sizes available. In the Shannon Callows, positive impacts were noted for breeding wader populations, as the non-productive works and advisory support brought about tangible benefits for these species compared to sites where this was not in place. Very limited changes to biodiversity quality were noted in County Leitrim, as it takes longer for wet species-rich grasslands to respond to management changes. Declines in species-richness are difficult to reverse, which highlights the value of this scheme in identifying such grasslands and incentivising environmentally sensitive management.

FARMER ATTITUDES TOWARDS RESULTS-BASED APPROACH

Participating farmer views on the results-based approach were captured in interviews at the start and end of the pilot scheme. Across the pilot areas, farmer sentiment and outlook on results-based schemes was very positive after participation, with the majority agreeing the results-oriented approach was 'fair'. Farmers indicated they would enter a results-oriented scheme if it was available, including farmers who had never taken part in a national agri-environment scheme. Many of the farmers felt that this was the only agri-environment scheme which understood the challenging conditions and type of land that they farm. Furthermore, farmers considered that having a results-based scheme in place in the future might make the continuation of farming more attractive to those considering other opportunities.

Since the end of the pilot project in 2018, there has been no results-based scheme open to participant farmers although a small number of

Shannon Callow farmers are participating in the NPWS Breeding Wader Farm Plans (see chapter 7). In County Leitrim, farmers were hopeful that such an approach would be widely rolled-out in the future and with over 70% of their wider farm holdings comprising semi-natural grasslands, there is much scope for results-based schemes in Ireland's HNV farmland. The principal concern of farmers in both regions for roll-out was that there would be consistency of scoring between project assessors and government administrators (inspectors and auditors) and that schemes would cover all semi-natural habitats within their farm holdings.

“One thing I didn't do was put on lick for rushes. I'd normally put it on each year to control the rushes, but when you [RBAPS Pilot team member] came to me about the scheme I said I wouldn't put it on as it might bring down my score and I didn't want to get a 3 [and not get paid]. I got enough information from what you were saying to make that decision and so I haven't used chemicals for 2 years now. I might keep it that way, you don't know what the chemicals are doing, it's more natural without them.”

County Leitrim farmer enrolled in RBAPS Pilot

Also of interest to farmers, agricultural advisors and future scheme administrators was an estimation of the time potentially required to implement a results-based scheme. The time for this pilot project totalled *c.* 2.4 days per farmer per year which included farmer engagement with specialist advice on achieving the biodiversity target and scoring of land parcels. Although a direct comparison of this time against management-based schemes was not possible, this level of time commitment appears to be broadly similar to that of farmers in the Burren Programme.

Long-term changes in environmental awareness or farm practices could not be formally captured because the farmer pilot phase operated over two years, although farmers anecdotally expressed opinions to the project team which indicated changes of attitude towards the environment and land management. The results-oriented European Innovation Partnership projects, particularly the Hen Harrier and Freshwater Pearl Mussel projects, which run for 5 years, can provide greater insight into farmer acceptance and interaction of such approaches.

DISSEMINATION AND COMMUNICATION

The project has been presented at conferences in Ireland, Spain, Belgium, Poland, Denmark, Italy and Cyprus by RBAPS Pilot team members and partners. The project website (www.rbaps.eu) was continually updated during the project and a project newsletter was produced in spring of each year. Regular meetings were held with local groups and project stakeholder advisory meetings were held annually in each pilot area. Numerous articles and interviews have been published or presented in local and national press/media to promote results-based schemes and showcase their value for HNV farmland and elements in the wider farming environment.

Importantly, the pilot has fed into emerging results-based approaches in Ireland and throughout Europe. Members of the RBAPS Pilot team have assisted European Environmental Innovation Partnership (EIP) Operational Groups in Ireland with results-based elements. The County Leitrim species-rich grassland scoring assessment has formed the basis for grassland scoring assessments that have been included in the Hen Harrier and Freshwater Pearl Mussel EIPs, which between them aim to enrol >1,500 farmers by the end of 2019. The Shannon Callows Breeding Wader option, has been rolled out and adapted where relevant as part of the Irish Breeding Curlew EIP.

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE ROLL-OUT

The RBAPS Pilot study built on the evidence and success of existing and previous results-based schemes, particularly the Burren Programme. Robust scoring assessments were developed for a wide range of species and habitats associated with grasslands and traditional croplands. Monitoring results indicate that these assessments are capable of distinguishing between grasslands of varying quality and cropland of varying quality, providing a valid basis for the assessment and payment for those of higher ecological value.

The scoring assessment and result indicators developed for the RBAPS Pilot measures have been a useful 'starting point' from which a wide range of measures for high quality targets could be delivered through scaled-up implementation of such schemes. The scope of the pilot comprised the development of targeted scorecards for rare or endangered species and

habitats. This, however, is only a starting point from which other habitats that provide important functions in terms of connectivity and landscape-scale biodiversity should be incorporated. The next step is to roll-out a scheme across a whole farm with a range of scorecards available for all habitats and biodiversity occurring on the farm. Moving to a farm-level assessment will encourage greater understanding by farmers and authorities of the ability of farm holdings to produce high quality ecosystem services, as opposed to focusing payments for production on a small proportion of the farm holding. To support the whole-farm approach, a comprehensive set of scoring assessments should be available that encompass the whole farm setting and diversity of habitats and features supported which are suitable for results-based measures.

Tiered payment structures that link the quality to the payment rate can incentivise change in farmer attitudes and management and bring about benefits for biodiversity targets. Payment rates must reflect the value of the biodiversity being produced, the effort required to produce it and also the prevailing market concerns. For example, the current €450 per hectare ceiling for permanent grassland payments under agri-environment is approximately €200 lower than income foregone for the opportunity to afforest in Ireland; this upper limit needs to be re-examined to facilitate greater scheme flexibility in attracting and maintaining farmers in result-based schemes.

It is clear from farmer response to the pilot that they want agri-environment schemes which fit their land, their type of management and their ability to deliver high quality environment, something many feel the conventional action-based schemes fail to take into account. This pilot has found that farmers, on the whole, view the results-based approach as a fair mechanism for delivering agri-environment payments. They are however, aware that there are pitfalls and that the policy, administration, expertise and resources need to be in place in order to make any type of scheme (action- or result-based), work for them and their farmed environment.

Results-based payments for agri-environment may be more challenging to roll-out in regions with no comprehensive agri-environment advisory service available to farmers, which would be the case for any agri-environment scheme with higher level biodiversity targets. Similarly, for any scheme type, up-skilling of advisors or farm information authorities and participants will be a key aspect in supporting and delivering scheme objectives and ensuring success of the scheme. It is also vital that sufficient

resources are placed into the appropriate design, monitoring and evaluation of agri-environment schemes, both prescription and results-based.

To facilitate more widespread Member State uptake of the results-based approach to agri-environment, we recommend a dedicated Article within the post-2020 Rural Development Regulation in CAP. Having this in place will provide administering organisations, farm organisations and farmers with confidence that the schemes and approaches under Pillar 1 will be integrated with other schemes under Pillar II.

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.



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