
July 2017
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1 Introduction and Background of Evaluation

This evaluation report addresses the evaluation requirements for the 2017 Annual Implementation Report of Ireland’s 2014-2020 Rural Development Programme and assesses programme achievements through the quantification of indicators and the answering of Common Evaluation Questions (CEQs).

1.1 Background

Starting in June 2016, and each year until 2024, Member States must submit an Annual Implementation Report (AIR) to the European Commission. The AIR provides information about the implementation and progress of the Rural Development Programme (RDP).

Enhanced AIRs, which combine both monitoring and evaluation elements and must be submitted in 2017 and 2019. The monitoring elements of the 2017 and 2019 enhanced AIRs are identical to previous standard AIRs. However, more evaluation elements will be included as the programming period advances.

The overall reporting requirements of the AIR 2017 combine both monitoring and evaluation elements and the information to be reported on should cover the years 2014-2016.

- Monitoring: The Managing Authority should report information on various issues, such as progress on implementing the evaluation plan, financial commitments and expenditures, data on indicators and progress towards targets as in the standard AIR.

- Evaluation: The Managing Authority should in the AIR 2017 report information resulting from the evaluator’s work, namely on the assessment of the programme’s achievements through the quantification of common, additional and programme-specific result indicators and answers to evaluation questions.

Commission Implementing Regulation (EU) No 808/2014 outlines the legal framework for the AIR and ensures that a common evaluation approach is applied across the EU while conducting and reporting on the evaluation of Rural Development Programmes, namely by:

- Demonstrating the progress and achievements of the EU and its Member State’s rural development polices through assessing the policy’s impacts, effectiveness, efficiency and relevance;
- Supporting a common learning process on how to prepare and implement rural development policy better;
- Contributing to better targeted support for rural development.

1.2 Overview of Strategic and Policy Context for RDP

The process of identifying the needs to be addressed by RDP funding and of designing measures in order to address these needs in the most efficient and effective manner was a lengthy and complex undertaking. The foundation for this process was a complex and multi-layered overarching policy framework incorporating:

- Europe 2020,
- Ireland’s National Reform Programme,
- the EU Cohesion Legislative Package,
- the Common Strategic Framework, and
- Rural Development legislation.

At the national level, the policy context is framed by the Irish economy emerging from a deep recession in tandem with the strong implementation of and exit from the EU-IMF Programme of Financial Support. A number of key sectorial strategies and reports further framed the context for the development of the needs underlying the RDP. For example, the identification of the wider set of challenges and opportunities in rural Ireland identified by the Commission for the Economic Development of Rural Areas (CEDRA) was of particular relevance.

The need for smart, sustainable and inclusive growth was set out at the EU level in the EU 2020 Strategy. These principles also lies at the heart of the "Food Harvest 2020” strategy (FH2020), which is a national, industry led vision for the Irish agri-food sector up to 2020 and its successor, Foodwise 2025 (FW2025) which identifies over 400 recommendations to achieve sustainable growth over a number of cross cutting themes. Many of the themes central to FH2020 and subsequently FW2025 are coherent with the themes that emerged from the wide ranging preparatory analyses underlying the development of Ireland’s RDP as well as with the objectives and priorities as set out in the Rural Development Regulation. For example, greater competitiveness in the sector, increased levels of innovation, coherence with environmental goals and challenges, regional development and security and growth in employment are common themes which reflect some of the shared policy goals which will underpin both national and European investment.

A comprehensive stakeholder consultation was strategically targeted at key phases of the RDP development process. The feedback received from a wide range of stakeholders had a tangible impact on the development of the needs, priorities and objectives to be addressed and the measures to be supported under the RDP. This partnership focused approach to the identification of needs and the development of measures was a key element in ensuring that RDP funding is targeted at very real and important issues in the sector.

In tandem with these processes, an independent evaluator conducted an ex-ante evaluation of the RDP and was involved in the development of the preparatory analyses underlying the design of the RDP. This approach provided a clear foundation to develop a Situation Analysis, SWOT analysis and Needs Assessment of the RDP. The predominant theme which emerged during the development of the SWOT and Needs analyses was that a wide range of issues existed which cut right across the spectrum of the Rural Development Objectives, Priorities and associated Focus Areas. In considering the wide range of evidence and information emerging from the SWOT etc, the approach taken was
to prioritise needs that were consistent with the overarching policy context set out above, which were firmly based in the evidence emerging, and which would provide a clear rationale for the investment of EU and national funds over the lifetime of this RDP. The main priorities that emerged from this process included measures to support:

- environmental, climate change and biodiversity issues and in particular environmental and biodiversity challenges at a local level;
- continued viability and competitiveness to address structural challenges in the sector;
- increasing levels of innovation and the knowledge base within the sector;
- targeted, locally led development via the LEADER Programme.

In relation specifically to Objectives set out in the Rural Development Regulation No 1305/2013, it is clear from the issues which arose in the SWOT and Needs analyses that Ireland’s RDP contributes to the three overarching objectives as set out in Rural Development Regulation, namely

- fostering the competitiveness of agriculture,
- ensuring the sustainable management of natural resources and climate action, and
- achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment.

These general long-term objectives are given more detailed expression in 6 Rural Development Priorities so that Member States adopt a common approach to the design of their RDPs. The core priorities that Member States must have regard to are:

- fostering knowledge transfer and innovation in agriculture, forestry and rural areas;
- enhancing the viability / competitiveness of farms and all types of agriculture;
- promoting food chain organisation and risk management in agriculture;
- restoring, preserving and enhancing ecosystems dependent on agriculture and forestry;
- promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors;
- promoting social inclusion, poverty reduction and economic development in rural areas.

In turn, each rural development priority identifies specific areas for intervention known as focus areas. A specific scheme can be designed to impact over a number of focus areas. The nature of the evidence which emerged from the preparatory analyses underlies the broad based approach evident in the RDP in relation to the expected contribution to particular rural development Priorities and Focus Areas. The selected measures within Ireland’s RDP following this analysis are set out in greater detail in Chapter 3.

The process of selecting and designing rural development measures for inclusion in this RDP has been firmly based in the preparatory work such as the Situation, SWOT and Needs analyses contained in this RDP. Thus, the measures outlined in this RDP establish clear linkages between identified needs in rural Ireland, the Rural Development Priorities set out in the Rural Development

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Regulation, and the wider policy context set out in this RDP and in Ireland’s Partnership Agreement. Consequently, in selecting and designing measures, the need to ensure that measures are firmly rooted in a clear intervention logic was at all times central to the process.

1.3 Methodological Approach
In line with the European Evaluation Helpdesk guidance a range of advanced and rigorous methods are used to empirically evaluate the results of the RDP measures. These methods include:

- Surveys were carried out on beneficiaries receiving support under Measure 1 BDGP Training, Measure 2 Trained PVPs under TASHAW, Measure 4 TAMS II, Measure 19 LEADER as well as surveys of participants at NRN events.
- Case studies were conducted examining the experience of farms that received support under Measure 7 GLAS Traditional Farm Buildings.
- An extensive new baseline analysis using Teagasc NFS data on support to beneficiaries under Measure 4 (TAMS II), Measure 10 (BDGP & GLAS), Measure 13 (ANC) and Measure 16 (Collaborative Farming Scheme). This data will be used in future evaluations to form a counterfactual impact evaluation to consider what would have likely occurred in the absence of the supports provided. The data will specifically study the impacts, where relevant, of RDP supports on output, productivity, family farm income, profitability, age profile, nitrogen balance and greenhouse gas emissions.
- Detailed face-to-face discussions and on-going interaction with senior officials within the Department of Agriculture, Food and the Marine, and the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, who oversee individual programme measures/schemes within their remit. These discussions and subsequent ongoing interactions had the objectives of accessing relevant quantitative and qualitative data, and probing the issues/factors impacting on the performance of the RDP 2014-2020 and the programme logic for different measures.
- A detailed analysis using the range of common and additional indicators that are collected for each scheme within Ireland’s 2014-2020 RDP.
- A review of all existing literature and research on RDP measures.

1.4 Report Structure
The structure of this evaluation report has been informed by the European Evaluation Helpdesk guidance, and the remainder of this document is structured as follows:

- Section 2: Review of Developments in External Environment to Programme
- Section 3: Description of Programme, Priorities, Measures and Budget
- Section 4: Answering the Common Evaluation Questions
- Section 5: Incorporates the findings from the detailed evaluations undertaken in the preceding sections to develop overall conclusions and formulate recommendations.

2 Review of Developments in the External Environment to the Programme

2.1 Introduction

As well as the policy context it is important to consider the external environment to the RDP. These developments have implications for Programme budgets and for the role played by the agricultural sector in the Irish economy. They also represent an input to evaluating the rationale and continued relevance of the Programme.

2.1 General Macroeconomic Developments

Table 2.1 Indicators of the National Economy 2014-2016

<table>
<thead>
<tr>
<th>% year on year changes</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Consumer Expenditure</td>
<td>1.7</td>
<td>4.5</td>
<td>3</td>
</tr>
<tr>
<td>Public Net Current Expenditure</td>
<td>5.4</td>
<td>1.2</td>
<td>5.3</td>
</tr>
<tr>
<td>Investment</td>
<td>18.2</td>
<td>32.7</td>
<td>45.5</td>
</tr>
<tr>
<td>Exports</td>
<td>14.4</td>
<td>34.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Imports</td>
<td>15.3</td>
<td>21.7</td>
<td>10.3</td>
</tr>
<tr>
<td>Gross Domestic Product (GDP)</td>
<td>8.5</td>
<td>26.3</td>
<td>5.2</td>
</tr>
<tr>
<td>Gross National Product (GNP)</td>
<td>9.2</td>
<td>18.7</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Central Statistics Office

A broad range of economic indicators show that the Irish economy continued to grow in 2016 on the back of strong performances in previous years. The main reason for the particularly high GDP growth rates in 2015 related to the activities of a small number of large multinational firms and reflects a number of exceptional factors which have limited impact on actual activity in the Irish economy. The main channels through which these factors affect Irish GDP include:

- The effect of 'contract manufacturing' where Irish headquartered multinationals contract the production of goods to third party companies abroad but these products are recorded in Ireland’s trade balance;

- The relocation of intellectual property-related assets or patents to Ireland. Ceteris paribus, this will reduce the level of royalty imports and as a result increase Irish GDP;

- An increase in new aircraft imports to Ireland for international leasing activities generating substantial fee income without significant employment effects;
The Economic Statistics Review Group was established by the Central Statistics Office (CSO) in September 2016 and its aim was to provide direction to the CSO on how best to meet user needs for greater insight into Irish economic activity, taking account of the measurement challenges inherent in providing a comprehensive picture of the highly globalised Irish economy. It has recommended that output in the Irish economy be measured by a new developed Gross National Income (GNI) indicator. GNI is designed to exclude globalisation effects that are disproportionately impacting the measurement of the size of the Irish economy and will better capture the true level of growth in the domestic economy.

The key indicators of the national economy show that exports increased by 2.4% in 2016, with imports also up by 10.3%. Personal consumption expenditure increased by 4.5% in 2016 and investment increased by 32.7%. These underlying components led to an increase in GDP of 5.2% in 2016.

2.2 Developments in the Agriculture Sector

In evaluating the RDP it is important to consider the structure of the Irish agricultural sector in terms of family farm income, employment, input and output estimates and exports.

2.2.1 Family Farm Income

Preliminary results from the 2016 Teagasc National Farm Survey found that the average age of a farmer was 57 years and the average farm size in 2016, across all systems of farming, was 47 hectares. Preliminary results also show that average family farm income (FFI) compared to 2015 decreased by 9% to €24,060, however, this conceals differences across the various farm types. Dairy farms account for about 19% of farms represented by the NFS - average dairy farm income fell by 17% to €51,809 mainly due to a fall in milk prices (-8.4%), as production continued to expand. On cattle rearing farms average family farm income increased by 2% to €12,908. Similarly, average income on cattle finishing farms increased by 3% to €16,887. The average farm income on sheep farms decreased by 1% to €16,001 while income on tillage farms decreased by 9% to €30,816.

Family Farm Income varies considerably by farm system though overall Family Farm Income, as illustrated in Figure 2.1, has remained relatively steady in recent years. The large variations by farm system are driven by differences in both farm size and profitability. Dairy farms are consistently the most profitable farms, and almost all dairy farms are classified by Teagasc as full-time farms in terms of the labour input required. Most cattle farms and the majority of sheep farms are classified as part-time in terms of labour input requirements, even though in many cases the farmers may not have off-farm employment.

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2.2.2 Employment

Data from the CSO’s Quarterly National Household Survey for Quarter 4 2016 showed a 5.5% increase in total employment in the economy over the same quarter in 2014. Total employment in Ireland averaged 2,020,000 across the four 2016 QNHS quarters with the primary sector\(^5\) in 2016 accounting for 5.6% of this.

Table 2.2 Agri-Sector Employment

<table>
<thead>
<tr>
<th>(000’s)</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>108.98</td>
<td>109.85</td>
<td>112.85</td>
</tr>
<tr>
<td>All persons in employment</td>
<td>1,913.90</td>
<td>1,963.55</td>
<td>2,020.00</td>
</tr>
</tbody>
</table>

Source: CSO Quarterly National Household Survey, Q4 2016

2.2.3 Inputs and outputs in Agriculture

Table 2.3 outlines the latest information for outputs and inputs in agriculture for 2016 based on the CSO’s Preliminary Estimates of Output, Input and Income in Agriculture. Between 2015 and 2016, gross value added at basic prices rose to €2.37 billion. Cattle and calves comprise of the largest livestock category with 32% of gross output, while milk accounts for an additional 25%. In respect of intermediate consumption, animal feed constituted 27% of the total. The CSO’s Agricultural Output Price Index shows that the 0.8% decrease in input prices was offset by an overall decrease of 3.6% in

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\(^5\) As well as farm holders, the QNHS figures include family and non-family members working on farms. Figures would also include around 6,000 fishermen and primary forestry workers.
output prices in 2016. There was a decrease of over 8% in prices in the dairy sector alone which reflected the 5.5% increase in the volume of dairy produce in 2016.

Table 2.3 Estimated Output, Input & Income in Agriculture, 2016 – Value, Volume and Price

<table>
<thead>
<tr>
<th></th>
<th>Value (€m)</th>
<th>% Change 2016 over 2015</th>
<th>Share of GO/Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Volume</td>
<td>Price</td>
</tr>
<tr>
<td><strong>Gross output at producer prices</strong></td>
<td>7,048.8</td>
<td>-1.2</td>
<td>2.64</td>
</tr>
<tr>
<td>Cattle and Calves</td>
<td>2,282.8</td>
<td>-3.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Pigs</td>
<td>467.6</td>
<td>2.0</td>
<td>-0.6</td>
</tr>
<tr>
<td>Sheep and Lambs</td>
<td>255.6</td>
<td>4.6</td>
<td>5.9</td>
</tr>
<tr>
<td>Poultry</td>
<td>156.7</td>
<td>10.3</td>
<td>12.2</td>
</tr>
<tr>
<td>Milk</td>
<td>1,792.3</td>
<td>-4.2</td>
<td>5.5</td>
</tr>
<tr>
<td>Cereals</td>
<td>236.1</td>
<td>-10.1</td>
<td>-3.4</td>
</tr>
<tr>
<td>Potatoes</td>
<td>138.4</td>
<td>12.0</td>
<td>8.3</td>
</tr>
<tr>
<td>Fresh Vegetables and Fruit</td>
<td>270.5</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Forage Plants</td>
<td>1,048.3</td>
<td>3.9</td>
<td>-2.4</td>
</tr>
<tr>
<td>Other</td>
<td>400.5</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Intermediate Consumption (Inputs)</strong></td>
<td>5,023.1</td>
<td>-0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Animal Feed</td>
<td>1,354.2</td>
<td>2.8</td>
<td>4.1</td>
</tr>
<tr>
<td>Fertilisers</td>
<td>503.2</td>
<td>-11.0</td>
<td>-0.8</td>
</tr>
<tr>
<td>Energy and Lubricants</td>
<td>369.4</td>
<td>-7.7</td>
<td>0.2</td>
</tr>
<tr>
<td>Maintenance and Repairs</td>
<td>429.8</td>
<td>-0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Forage Plants</td>
<td>1,045.3</td>
<td>3.9</td>
<td>-2.4</td>
</tr>
<tr>
<td>Contract Work</td>
<td>348.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Others</td>
<td>973.1</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Gross value added at basic prices</strong></td>
<td>2,376.6</td>
<td>0.1</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Source: Central Statistics Office
2.2.4 Exports
Total agri-food exports increased by 38% between 2010 and 2016 to €12.2 bn (total imports were €8.2bn). This increase included growth in exports to the UK (+24%) and the rest of the EU (+25%). However, the most significant export growth was seen in exports to non-EU destinations (+85%), driven particularly by growth in exports to Asia (+185%) and the Americas (+103%).

Figure 2.3 Total Irish Agri-food Exports 2010-2016

2.3 Conclusions
- Ireland’s economy continues to grow in 2016 on the back of strong performances in previous years.
- While family farm income has remained relatively steady in recent years, preliminary results from the 2016 Teagasc National Farm Survey show that average family farm income (FFI) decreased by 9% to €24,060.
- The CSO’s Agricultural Output Price Index shows that the 0.8% decrease in input prices was offset by an overall decrease of 3.6% in output prices in 2016. There was a decrease of over 8% in prices in the dairy sector alone which reflected the 5.5% increase in the volume of dairy produce in 2016.
3 Description the Programme, Priorities, Measures and Budget

3.1 Introduction

This section contains a description of the structure and composition of Ireland’s 2014-2020 RDP, before discussing the level of funding across the different priority areas and measures of the RDP.

Ireland’s 2014-2020 RDP was formally adopted by the EU Commission on the 26th May 2015 and contains an extensive suite of measures that address all farming sectors and support community-led local development by means of the LEADER measure. The Programme is co-funded by the EU’s European Agricultural Fund for Rural Development (EAFRD) and the national exchequer. EU support for the RDP via the EAFRD will amount to €2.19 billion over the 7-year Programme lifespan and this EU funding will be supplemented by exchequer funding to bring the total support available under the RDP to some €4 billion.

3.2 Implementing Structures of the RDP

As was the case in previous RDPs, DAFM is the Managing Authority for the 2014 – 2020 RDP. Rural Development Division within DAFM acts as the RDP’s Managing Authority. The functions of the Managing Authority include:

- Ensuring that mechanisms for the monitoring and evaluation of the programme and the collection of relevant data are in place;
- Ensuring that beneficiaries under the RDP are informed of the obligations arising from support granted;
- Ensuring that the relevant progress and evaluation reports in relation to RDP implementation are provided;
- Ensuring publicity arrangements for the RDP are in place;
- Putting in place implementation support structures for the RDP, including the establishment of a monitoring committee and National Rural Network.

The Paying Agency is made up of a number of elements, and its functions include putting in place an administrative organisation and a system of internal control which provide sufficient guarantees that payments are legal and regular, and properly accounted for. The Paying Agency incorporates:

- Finance Division within DAFM, which manages the claims for expenditure under EAFRD;
- Implementing line divisions within DAFM. These divisions are responsible for the design, implementation and administration (including administrative checks) of RDP measures. These divisions also process payments for individual measures and report accordingly to Finance Division;
• Inspectorate and technical divisions. These divisions are responsible for many of the on-the-spot field inspections which underlie the control regime for RDP measures;

• DAHRRGA is a delegated body of the Paying Agency in respect of LEADER.

Irish Rural Link in partnership with the Wheel, NUI Galway and Philip Farrelly and Co. has been chosen to run Ireland’s National Rural Network following a competitive tender process. The running of the NRN is funded via Ireland’s technical assistance budget under the 2014-2020 Rural Development Programme. The NRN aims to:

• increase the involvement of stakeholders in the implementation of rural development;

• improve the quality of implementation of rural development programmes;

• foster innovation in agriculture, food production, forestry and rural areas.

A Monitoring Committee composed of various relevant stakeholders (including, for example, farm representative bodies and environmental interests) is in place for the 2014 – 2020 RDP. The Monitoring Committee will have a role in relation to monitoring the performance of the RDP and the effectiveness of its implementation.

3.2 Measures, Submeasures and Schemes within the RDP

Support under Ireland’s 2014-2020 RDP is delivered through measures and submeasures as set out in the Regulation (EU) No 1305/2013. In some instances, schemes cut across a number of submeasures while in others a particular measure may encompass a number of separate schemes. The list of measures and their associated submeasures is presented in Table 3.1 below along with their total allocation over the programme period.

Transitional arrangements have been put in place for expenditure relating to the 2007-2013 RDP. Transitional funding is included in the figures below under Measures 4, 10 and 13. In addition, transitional funding has also been allocated to measures from the 2007-2013 RDP (Natura 2000 payments) which do not have a corresponding measure in the 2014-2020 RDP.

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<table>
<thead>
<tr>
<th>Measure and Submeasure</th>
<th>Total Allocation 2014-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure 1 - Knowledge transfer and information actions</strong></td>
<td>125,800,000</td>
</tr>
<tr>
<td>Submeasure 1.1 (Knowledge transfer groups and M10 Training)</td>
<td>125,800,000</td>
</tr>
<tr>
<td><strong>Measure 2 - Advisory services, farm management and farm relief services</strong></td>
<td>8,300,000</td>
</tr>
<tr>
<td>Submeasure 2.3 (CPD for Agri Advisors)</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Submeasures 2.1 &amp; 2.3 (Targeted Advisory Service on Animal Health and Welfare)</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Submeasure 2.1 – Support for the setting up of Producer Organisations</td>
<td>300,000</td>
</tr>
<tr>
<td><strong>Measure 4 - Investments in physical assets</strong></td>
<td>425,000,000</td>
</tr>
<tr>
<td>Submeasure 4.1 (TAMS II)</td>
<td>395,000,000</td>
</tr>
<tr>
<td>AEOS Transitional</td>
<td>30,000,000</td>
</tr>
<tr>
<td><strong>Measure 7 - Basic services and village renewal in rural areas</strong></td>
<td>6,000,000</td>
</tr>
<tr>
<td>Submeasure 7.6 (GLAS Traditional Farm Buildings)</td>
<td>6,000,000</td>
</tr>
<tr>
<td><strong>Measure 10 - Agri-environment-climate</strong></td>
<td>1,531,005,630</td>
</tr>
<tr>
<td>Submeasure 10.1 (GLAS, BDGP, The Burren Programme &amp; Transitional AEOS/REPS)</td>
<td>1,531,005,630</td>
</tr>
<tr>
<td><strong>Measure 11 - Organic farming</strong></td>
<td>56,000,000</td>
</tr>
<tr>
<td>Submeasures 11.1 &amp; 11.2 (The Organic Farming Scheme)</td>
<td>56,000,000</td>
</tr>
<tr>
<td><strong>Measure 12 Natura 2000 &amp; WFD (Transitional)</strong></td>
<td>73,250,000</td>
</tr>
<tr>
<td>Submeasures 12.1 Natura 2000 &amp; WFD</td>
<td>73,250,000</td>
</tr>
<tr>
<td><strong>Measure 13 - Payments to areas facing natural or other specific constraints</strong></td>
<td>1,370,000,000</td>
</tr>
<tr>
<td>Submeasure 13.2 &amp; 13.3 (ANC including Islands)</td>
<td>1,370,000,000</td>
</tr>
<tr>
<td><strong>Measure 14 – Animal Welfare Scheme</strong></td>
<td>100,000,000</td>
</tr>
<tr>
<td>Submeasure 14 - payment for animal welfare scheme</td>
<td>100,000,000</td>
</tr>
<tr>
<td><strong>Measure 16 - Co-operation</strong></td>
<td>62,000,000</td>
</tr>
<tr>
<td>Submeasure 16.1 (General EIPs)</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Submeasure 16.1 (EIPs – Locally Led Hen Harrier and Freshwater Pearl Mussel)</td>
<td>35,000,000</td>
</tr>
<tr>
<td>Submeasure 16.1 (EIPs - Locally Led Environmental and Climate)</td>
<td>20,000,000</td>
</tr>
<tr>
<td>Submeasure 16.3 (Collaborative Farming)</td>
<td>4,000,000</td>
</tr>
<tr>
<td><strong>Measure 19 - Support for LEADER local development</strong></td>
<td>250,000,000</td>
</tr>
<tr>
<td>Submeasures 19.1, 19.2,19.3 &amp; 19.4 (LEADER)</td>
<td>250,000,000</td>
</tr>
<tr>
<td><strong>Measure 20 Total - Technical Assistance</strong></td>
<td>8,145,000</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>8,145,000</td>
</tr>
<tr>
<td><strong>ERS (Transitional)</strong></td>
<td>9,207,547</td>
</tr>
</tbody>
</table>

Source: DAFM
The list of measures within Ireland’s RDP and their associated Priorities and Focus Areas are outlined in Table 3.2 below. This shows that a specific scheme can be designed to impact over a number of focus areas and this evaluation will assess each measure by answering the common evaluation question linked to their relevant focus area(s).

Table 3.2 Relationship between RDP Measures and Rural Development Priorities and Focus Area

<table>
<thead>
<tr>
<th>Priority One</th>
<th>Two</th>
<th>Three</th>
<th>Four</th>
<th>Five</th>
<th>Six</th>
</tr>
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<tbody>
<tr>
<td>Focus Area</td>
<td>1a</td>
<td>1b</td>
<td>1c</td>
<td>2a</td>
<td>2b</td>
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<tr>
<td>M1 Knowledge Transfer Groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1 GLAS/BDOP Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2 CPD for Advisors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2 Targeted AHV Advisory Service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2 Beef Producer Organisations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M4 TAMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M7 GLAS Traditional Farm Buildings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M10 GLAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M10 The Burren Programme</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M11 Organic Farming Scheme</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M12 NATURA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M13 Areas of Natural Constraint (ANC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M14 Animal Welfare (Sheep) Scheme</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M10 CP General</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M16 EP Locally Led HRI and FWPM Projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M17 EP Locally Led Env. and Climate Projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M18 Collaborative Farming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M19 LEADER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: DAFM

3.3 Amendments to the RDP

As the RDP programming period progresses, it is open to Member States to modify their RDPs subject to the conditions set out in the EU regulations. The first amendment to Ireland’s RDP 2014 - 2020 was formally approved by the European Commission on 23rd June, 2016. It introduced:

- Measure 2: Permission to be a member of two Knowledge Transfer Groups.
- Measure 4: An amendment to TAMS II to introduce a tillage scheme, rainwater harvesting and sheep fencing.
- Measure 10: Changes to GLAS Tranche 2, on foot of a review of GLAS Tranche 1, and the introduction of “The Burren Programme” (a locally led agri-environmental scheme).
- Measure 11: Changes to the Organic Farming Scheme to allow for the extension of ‘old’ contracts and the inclusion of additional land.
- Measure 19: LEADER clarifications in relation to use of second-hand equipment, use of payment costs instead of simplified cost options and inclusion of reference to advance payments.
The second amendment to Ireland’s RDP was formally approved by the European Commission on 25th January, 2017. It introduced the following:

- Measure 2: The introduction of a new sub-measure to provide support for the setting up of beef producer organisations (BPOs)
- Measure 10: Changes to the GLAS specification to allow for GLAS Tranche 3
- Measure 14: The introduction of a new sub-measure Animal Welfare Scheme (sheep)
- Measure 16: The introduction of two new sub-measure European Innovation Partnerships (EIPs) – EIPs Locally Led Hen Harrier and Freshwater Pearl Mussel) and EIPs Locally Led Environmental and Climate)
4 Answering the Common Evaluation Questions

This section aims to answer the relevant Common Evaluation Questions for each scheme within Ireland’s RDP using a range of methodological approaches. RDP measures and schemes are included in this evaluation if support has been provided to beneficiaries over the 2014 - 2016 period. Schemes where no payment has been made during this period are excluded from this evaluation as it is not possible to assess their results or impacts. Measures from Ireland’s 2007-2013 RDP that received transitional support under the current RDP in 2014-2016 are also evaluated.

4.1 Training delivered in support of the Beef Data and Genomics Programme (BDGP) (Measure 1, Submeasure 1.1)

Relevant Focus Areas and Common Evaluation Questions

- **FA 1A** To what extent have RDP interventions supported innovation, cooperation and the development of the knowledge base in rural areas?
- **FA 1C** To what extent have RDP interventions supported lifelong learning and vocational training in the agriculture and forestry sectors?
- **FA 5D** To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

4.1.1 Background

Training was provided to approved beneficiaries of the Beef Data and Genomics Programme (BDGP) which is programmed under Measure 10 of Ireland’s RDP. It aims to optimise the delivery of the BDGP and while the intervention logic and contribution to focus areas are integrated with Measure 10, funding for this training is allocated under Measure 1.

There are two elements to the BDGP training. The first element is General BDGP training where participating farmers are required to attend an approved training course which provides clear information as regards to what is required at individual farm level and increases the participants’ knowledge of genomics and breeding selection.

The second element of BDGP training consists of a 2 hour preparatory training course on the carbon navigator. This is a tool which estimates the potential greenhouse gas reductions and financial savings that can be made on each farm through enhanced farm efficiency. It also allows individual farmers to set future targets and make comparisons with average and best performing farmers.

Following an open competitive tender process run by the Department of Agriculture, Food and the Marine the BDGP General training contracts was awarded to Teagasc. Carbon Navigator training was delivered in a one on one setting by approved advisors. All participants were required to complete the training elements of the BDGP before the 31st October 2016 and the carbon navigator by 30 November 2016. Participants who did not complete these courses by these deadlines had penalties applied to their 2015 and 2016 payments. Those participants who did not attend the training course and/or complete the carbon navigator by 30 April 2017 and 31 May 2017 respectively have been disqualified from the BDGP and any payments already made are subject to recovery.
Table 4.1.1 BDGP Training Indicator Data

<table>
<thead>
<tr>
<th>Indicator Description</th>
<th>2016</th>
<th>2023 Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1 - Total Public Expenditure</td>
<td>€8,471,401.00</td>
<td>€14,100,000</td>
</tr>
<tr>
<td>O11 - No. of training days given (day = 8 hours)</td>
<td>462</td>
<td>-</td>
</tr>
<tr>
<td>O13 - No. of training participants</td>
<td>24,174</td>
<td>35,000</td>
</tr>
<tr>
<td>No. of carbon navigators completed</td>
<td>23,553</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: DAFM

4.1.2 General Training

The steps involved in providing the BDGP general training are outline below:

1. DAFM competitive tender process (21 September 2015)
2. Teagasc selected to run the BDGP training (8 February 2016)
3. Teagasc, DAFM, ICBF trained 171 advisors (March 2016)
4. Trained advisors delivered the 4 hour training course to the 24,174 farmers (March – October 2016)

A total of 171 agricultural advisors were trained as BDGP advisors for the delivery of BDGP courses and each advisor was required to attend a 3 day training course delivered by Teagasc, DAFM and ICBF specialists. Two of the training days explained the background to, and the complexities of, the scheme which was delivered by Teagasc Specialists, DAFM personnel and ICBF geneticists. The third day was run by Teagasc Specialists where all advisors were brought through a “dry run” of the BDGP course where all the relevant queries were answered and where the advisors could see the structure, layout and timing of each section for competent course delivery.

Following the BDGP advisor training, two trained BDGP advisors (one from Teagasc and one from Farm Relief Service) delivered the four hour course material at each farmer course.

General Training Courses for BDGP were rolled out across the country from 21st March 2016 and were completed in October 2016. While the training provider is the beneficiary of support under this measure, each participating farmer received a payment of €166 from the training provider to compensate the farmer for the time element (replacement farmer cost) and travel costs associated with attending the training. As per Regulation 1305/2013, the payment for attending BDGP training was processed via the beneficiary. Teagasc put in place a payment system in conjunction with the Farm Relief Service (FRS) where participants were paid this €166 in the form of a cheque at the end of each course (DAFM subsequently reimbursed Teagasc for these payments). Over €3.8m was paid directly to farmers with no delays or issues.
The course consisted of four hours of teaching material and aimed to give participants a better understanding of:

1. The different requirements within this programme to enable participants to optimise delivery of the commitments undertaken and to maximise annual payment over the coming five years.

2. How €uro-star indexes for bulls, cows and heifers are produced and how they can be used to improve the performance of the applicants suckler herd.

3. Genomics and the reasons why it will improve the accuracies of the €uro-star indexes in the applicants herd.

4. What the applicants options are for sourcing the replacement females that they will need for their herd over the remaining years to meet the programme requirements.

The Teagasc Drystock Specialist Team in conjunction with DAFM and the Irish Cattle Breeding Federation (ICBF) developed all of the material used for the training course. These included presentations, videos profiling BDGP farmer participants and BDGP requirements and a 64 page BDGP Information Manual.

<table>
<thead>
<tr>
<th>Advisory Regions</th>
<th>Number of applicants trained</th>
<th>No of Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cork East</td>
<td>689</td>
<td>29</td>
</tr>
<tr>
<td>Kilkenny/Waterford</td>
<td>926</td>
<td>36</td>
</tr>
<tr>
<td>Tipperary</td>
<td>1032</td>
<td>43</td>
</tr>
<tr>
<td>Cork West</td>
<td>1046</td>
<td>39</td>
</tr>
<tr>
<td>Roscommon/Longford</td>
<td>1741</td>
<td>70</td>
</tr>
<tr>
<td>Laois/Kildare/Meath/Louth/Dublin</td>
<td>1760</td>
<td>66</td>
</tr>
<tr>
<td>Wicklow/Carlow/Wexford</td>
<td>1315</td>
<td>52</td>
</tr>
<tr>
<td>Kerry/Limerick</td>
<td>2084</td>
<td>81</td>
</tr>
<tr>
<td>Mayo</td>
<td>2248</td>
<td>86</td>
</tr>
<tr>
<td>Westmeath/Offally/Cavan/Monaghan</td>
<td>3401</td>
<td>133</td>
</tr>
<tr>
<td>Donegal/Sligo/Leitrim</td>
<td>3226</td>
<td>122</td>
</tr>
<tr>
<td>Galway/Clare</td>
<td>4706</td>
<td>183</td>
</tr>
<tr>
<td>Total</td>
<td>24174</td>
<td>940</td>
</tr>
</tbody>
</table>

Source: Report on the Delivery of the Training Courses for the BDGP (Teagasc 2017)

As Teagasc has 12 advisory regions nationally, BDGP courses were arranged accordingly. Table 4.1.2 shows that the Galway/Clare region trained the highest number of applicants due to the dominance of suckler farming in that region. Conversely the dominance of dairying and tillage in Cork East led to the lowest number of applicants completing BDGP training here.
To ensure that BDGP participants had sufficient opportunities to attend the training course Teagasc issued three separate course times and dates per region. They contacted applicants by post giving them 14 days’ notice with the applicant allowed four days to respond to confirm their attendance. If no response was received, Teagasc made contact with the applicant by phone. If the applicant failed to attend the first course they were invited to, then a second invite was issued. Average attendance at these courses was 26. Third invite courses were held in all regions and these were attended by 11 participants on average.

24,174 (97.5%) BDGP participants were trained in total over 940 BDGP training courses across 90 locations throughout Ireland.

4.1.3 Carbon Navigator Training

The Carbon Navigator is an online farm management package developed by Bord Bia and Teagasc. It has been developed to promote the uptake of carbon-efficient farming practices and demonstrates, for each scheme participant, the level of emissions at farm level while also setting indicative targets for reducing them.

Carbon Navigator training is delivered in a one on one setting by approved advisors who have undergone the relevant Continuous Professional Development Module under Measure 2.3 of Ireland’s RDP. The Carbon Navigator training support delivered corresponds to a payment at the rate of €160 to the advisor. The farmer’s cost is incorporated into their annual BDGP payment. All carbon navigator training was carried out by November 2016 and 23,553 carbon navigators were completed in 2016.

The first completion of the Carbon Navigator must be undertaken in conjunction with an approved adviser. Farmers participating in BDGP were required to make contact with a qualified adviser to assist them in the completion of their Carbon Navigator for 2016. The list of qualified advisers was made available on the Department’s website. Once a farmer made the initial contact, that adviser provided 2 hours of preparatory training on the carbon navigator including assisting the farmer in the online completion of the navigator and providing farmers with an overview of the benefits associated with reaching the individual targets set out in the navigator.

The participant is required to provide details that highlight how a farm’s GHG emissions can be reduced. The areas covered are as follows:

- Length of grazing season.
- Age at first calving.
- Calving Interval.
- Animal weight gain.
- Nitrogen efficiency.
- Slurry management.

The Carbon Navigator compares an individual’s farm performance with other similar farms and highlights the potential impact on income and GHG emissions of reaching the targets set. For example, by turning animals out to grass two weeks earlier in spring, a farmer will save on feed costs and see an increase in animal performance by getting more grass into the diet. Research from
Murphy et al. 2013\(^7\) shows that the overall estimate for reductions in GHG emissions in beef systems related to increased grazing season length is 0.09% / kg beef carcass per additional day. In dairy systems the reduction is estimated at 0.17%. The economic impact is estimated at €1.54 and €0.095 per day per livestock unit for suckler cows and followers respectively and €2.70 per cow per day in dairy.

4.1.4 Methods Applied

1. Teagasc produced a report based on the training course feedback sheets completed by all attendees at the general training courses. A 5% (1,223) sample of the feedback sheets were analysed by Teagasc. The feedback sheets contained seven different questions with multiple choice answers and a final comment section.

4.1.5 Findings

**BDGP General Training**

- 99% of the course participants surveyed stated that they had a better understanding of what was expected of them as participants in BDGP.

Figure 4.1.1 Did the course give you a better understanding of what is required under the BDGP?

- 97% of the course participants surveyed stated that as a result of completing the BDGP general training course delivered by Teagasc that they now knew more about the six requirements of being in the programme, which shows how effective the advisors were at delivering the training and also shows the usefulness of the variety of training materials used.

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\(^7\) The Carbon Navigator — A decision support tool to reduce greenhouse gas emissions from livestock production systems (Murphy et al. 2013)
Participants were asked to rank their knowledge of the six basic requirements of the BDGP scheme all of which contribute to reducing GHG and ammonia emissions outlined in Focus Area 5D. The 6 requirements include data recording, understanding the Eurostar indexes, understanding BDGP reports, selecting a stock bull/AI bull using indexes and developing a replacement policy. Each of these topics was explained at length by both advisors and formed the core basic messages of the course. Figure 4.1.2 shows that following the course, 61.3% of participants stated they knew a lot more whilst only 1.7% knew very little extra which shows how effective the advisors were at delivering the training and also shows the usefulness of the variety of training materials used. Similar results were found when participants were asked to state their level of understanding of the individual six requirements with 70.1% of participants stating they knew a lot more on selecting a stock bull/AI bull using indexes following the training course.

The feedback sheet allowed participants to state if they were unsatisfied with any element of the training course. While 86% left this section blank, less than 1% indicated that the course should be held in the evening or at the weekend. Less than 1% said that the scheme should have been run much earlier in the breeding season and that more one to one time with advisors should be allowed to explain individual breeding reports.

4.1.6 Problems encountered influencing the validity and reliability of evaluation findings

Submeasure 1.1 Training delivered in support of the Beef Data and Genomics Programme (BDGP), the BDGP general training was completed by 97.5% of BDGP participants before the required deadline and 23,553 carbon navigators were completed in 2016. The small number of BDGP participants not completing the BDGP training and the carbon navigator by the required deadlines either dropped out of the scheme or received a penalty on their 2015 and 2016 payments. Those herds that did not attend the training course or complete the carbon navigator within six months of the deadline have been disqualified from the BDGP and any payments already made are subject to recovery.
4.1.7 Conclusions

Beef Data and Genomics Programme (BDGP) General Training Courses were rolled out across the country from 21st March 2016 and were completed in October 2016. 24,174 (97.5%) BDGP participants were trained in total over 940 BDGP training courses across 90 locations throughout Ireland. 99% of participants stated that they had a better understanding of the requirements of the BDGP following the training course whilst less than 1% stated that they had very little extra understanding.

Carbon Navigator training was delivered in a one on one setting by approved advisors. All carbon navigator training was carried out by November 2016 and 23,553 carbon navigators were completed in 2016. A more detailed and robust analysis on the impact of the carbon navigator will be conducted over the lifetime of the BDGP as each applicant must submit data annually to allow for an update of the Carbon Navigator. This data will be submitted via survey forms issued by the ICBF.

Training delivered support of the BDGP will increase the knowledge base and the lifelong learning in the agriculture sector as a primary effect. It will also increase farmer knowledge of techniques and best practice and will contribute to reducing GHG and ammonia emissions from agriculture as a secondary effect.

4.1.8 Recommendations

1. One of the main recommendations from course attendees who were surveyed was that the training course for this second tranche of Beef Data and Genomics Programme (BDGP) should occur as soon as possible after new applicants have committed.

2. For BDGP II, it is important that the same process is used to ensure that participants attend the training courses and complete training. 97.5% of BDGP I participants completed the training element in the required timeframe. Training is a compulsory element of the BDGP.
4.2 The Targeted Advisory Service on Animal Health and Welfare and a matching service funded under Measure 20 Technical Assistance. (Measure 2, Submeasures 2.1 & 2.3)

Relevant Focus Areas and Common Evaluation Questions

- **FA 1A** To what extent have RDP interventions supported innovation, cooperation and the development of the knowledge base in rural areas?
- **FA 1C** To what extent have RDP interventions supported lifelong learning and vocational training in the agriculture and forestry sectors?
- **FA 3B** To what extent have RDP interventions supported farm risk prevention and management?

4.2.1 Background

The objective of the Targeted Advisory Service on Animal Health and Welfare (TASAHW) is to target investment at a number of animal diseases in order to limit the adverse impact animal health and financial costs associated with these diseases. It involves the specialist training of practitioners/veterinarians to deliver an on farm animal health and welfare advisory service. The advice is provided to individual farmers on request and strategically targets a number of core areas such as Bovine Viral Diarrhoea (BVD), Johne’s disease (JD), Somatic Cell Count (SCC) and significant animal health issues in the pig sector.

There are two interconnected submeasures used to deliver the Targeted Advisory Service on Animal Health and Welfare service:

- **Submeasure 2.3 Animal Health & Welfare - Training for advisors**
- **Submeasure 2.1 Animal Health & Welfare - On farm advice**

Under the Service, DAFM pay veterinary practitioners for up to three hours of advice per farm visit. Only private veterinary practitioners (PVPs) who have undertaken TASAH training, delivered under submeasure 2.3, in relation to the relevant disease will be eligible to provide the Service. Animal Health Ireland (AHI) was awarded the contract for the setting up and organising of a system of delivery by the trained veterinary practitioners of specialist advice to farmers in September 2015. Animal Health Ireland also provides an administrative support service supported via M20 Technical Assistance to match the trained veterinary practitioners to farmers seeking advice in consultation with DAFM.
Table 4.2.1 BDGP Training Indicator Data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2015</th>
<th>2016</th>
<th>2023 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 - Total Public Expenditure</td>
<td>€13,428.30</td>
<td>€288,052.75</td>
<td>€6,000,000</td>
</tr>
<tr>
<td>O4 - No. of actions/operations supported</td>
<td>11 (BVD training courses)</td>
<td>52 (25 BVD and 27 JD)</td>
<td>-</td>
</tr>
<tr>
<td>O13 - No. of beneficiaries advised</td>
<td>0</td>
<td>1,088</td>
<td>10,000</td>
</tr>
<tr>
<td>O14 - No. of advisors trained</td>
<td>117</td>
<td>769</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: DAFM

4.2.2 TASAHW service in 2015 & 2016

The Targeted Advisory Service on Animal Health and Welfare (TASAHW) focused on the delivery of an advisory service for Bovine Viral Diarrhoea (BVD) and the training of PVPs under Johne's disease (JD) in 2015 and 2016. BVD is a highly contagious viral disease of cattle that can be spread directly by infected animals, or indirectly, for example via slurry and contaminated visitors or equipment. JD is an infectious condition of cattle caused by the bacterium Mycobacterium Avium subspecies Paratuberculosis (Map). The disease progresses slowly and leads to increasingly severe damage to the lining of the gut. The TASAHW training aims to increase the awareness of veterinary practitioners and enhance animal disease risk management and prevention on farms. Both of these objectives are assessed through surveying participants at training events and monitoring the number of persistently infected BVD births and herds.

4.2.3 Methods Applied

1. Surveys were carried out on trained PVPs to gather feedback on their experience of the training events under TASAHW. 419 PVPs that participated in the BVD training were surveyed along with 29 PVPs that undertook the JD training.

2. A detailed analysis of common and additional indicator data on the TASAHW collected by DAFM and Animal Health Ireland.
4.2.4 Findings

4.2.4.1 TASAHW - Training for Advisors

Herd owners may submit a request to Animal Health Ireland (AHI) for an advisory visit and herds that have one or more positive or inconclusive results for the Bovine Viral Diarrhoea (BVD) virus in 2016 are eligible for an investigation. Only veterinary practitioners who have participated in the BVD TASAH training provided by AHI are eligible to provide this Service. AHI maintains a list of trained veterinary practitioners which is available to herd owners. AHI has developed a portal on its website to inform trained practitioners of requests for the service and to allow them to manage these requests. These training courses were free to attend and were available to veterinary practitioners who are registered with the Veterinary Council of Ireland. They also contributed towards the veterinary practitioner’s Continuing Veterinary Education (CVE) points.

BVD training events for private veterinary practitioners (PVPs) began in 2015. 11 events were held nationwide with a total of 117 PVPs trained to deliver herd investigations. A further 25 BVD training events were delivered by Animal Health Ireland in the first quarter of 2016 with 423 PVPs trained. Each event lasted 4 hours in total and 2 events were held in each location, the first in the morning and the second the afternoon.

By the end of 2016, a total of 1,548 BVD herd investigations had been requested by farmers. 1,088 of these investigations were completed by trained PVPs under TASAHW in 2016 with the remaining investigations to be completed in 2017.

A Persistently Infected (PI) calf is one that is born infected with BVD virus and is a lifelong carrier and shedder of the virus. All herds with PI BVD calves born in 2017 are required to undergo an investigation delivered by an approved PVP, within 3 months of the date of the first positive result.

27 Johne’s disease (JD) training events were held in the 3rd Quarter of 2016 across 14 different locations with 346 PVPs attending, an average of 12 per event. In addition, AHI also trained 22 Department Veterinary Inspectors in connection with the scheme.

4.2.4.2 BVD training;

7 topics were covered under the BVD training and these included:

1. An introduction to TASAHW
2. A BVD refresher (disease and national programme)
3. Diagnostics methods, laboratory listings and submission of samples
4. Negative Herd Status
5. Use of the Irish Cattle Breeding Federation (ICBF) website to access herd data
6. Herd investigation and biosecurity review
7. Case studies

98% of PVPs that participated in the BVD training courses felt that the topics covered under the training were relevant or very relevant.
Participants were asked to rank on scale of 1-7 (1= strongly disagree 7= strongly agree), on how strongly they felt the training added to their knowledge on each of the topics covered. Figure 4.2.1 shows the breakdown of the average ranking score of topics delivered under BVD Training Courses to the 419 PVPs.

**Figure 4.2.1 Average participant ranking score of topics delivered under BVD Training Courses**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Average Ranking Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to TASAHW</td>
<td>6.10</td>
</tr>
<tr>
<td>BVD refresher (disease and...)</td>
<td>5.80</td>
</tr>
<tr>
<td>Diagnostics methods,..</td>
<td>5.77</td>
</tr>
<tr>
<td>Negative Herd Status,..</td>
<td>6.06</td>
</tr>
<tr>
<td>Use of ICBF to access herd...</td>
<td>6.11</td>
</tr>
<tr>
<td>Herd investigation and...</td>
<td>5.92</td>
</tr>
<tr>
<td>Case studies</td>
<td>5.81</td>
</tr>
</tbody>
</table>

Source: Animal Heath Ireland

All topics received an average ranking of over 5.7 with the *Use of the ICBF website to access herd data* topic scoring highest with an average of 6.11. When asked if any improvements could be made to the delivery of the training, 5.7% of participants requested that more case studies be covered in any future training elements.

**4.2.2.3 JD Training**

As was the case with the BVD training, participants of the JD training events were asked to rank on scale of 1-7 (1= strongly disagree 7= strongly agree), on how strongly they felt the training added to their knowledge of the topics covered. 5 topics were covered under this element of training under TASAHW and these included:

1. An introduction to TASAHW
2. A JD refresher on the pilot programme
3. Diagnostic methods and laboratory testing
4. Herd investigation
5. Case studies
Figure 4.2.2 shows the breakdown of the average ranking score of topics delivered under JD Training Courses. It must be noted that only 29 responses were received, a very small sample of the total 346 PVPs who attended this training in 2016.

![Bar chart showing average participant ranking score of topics delivered under JD Training Courses](image)

Source: Animal Heath Ireland

Participants ranked the topics delivered under the JD training courses slightly lower than participants who attended the BVD Training. Participants outlined that they would be interested in attending future training activities on Somatic Cell Count (SCC), Infectious Bovine Rhinotracheitis (IBR) and Antimicrobial Resistance.

### 4.2.2.4 The TASAHW Contribution to Supporting Farm Risk Prevention and Management through the Eradication of BVD

Animal Health Ireland commissioned the Scottish Agricultural Colleges (2011) to undertake a modeling study of losses due to Bovine Viral Diarrhoea (BVD). The study estimated annual losses in Ireland of at least €102 million per annum\(^8\), consisting of €55, €27 and €20 million in the dairy, suckler and finishing sectors respectively. At the animal level this is equivalent to an average of €48/year for every dairy cow and €30/year for every suckler cow. Further cost benefit analysis from studies carried out in Northern Ireland\(^9\) shows that estimated greenhouse gas savings (CO2 equivalent) arising from eradication of BVD in Ireland would be likely to be of the order of €26 million/annum, in addition to the €102 million/annum saving identified above.

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A reduction in the prevalence of Persistently Infected (PI) BVD calf births is an integral measure of the success of the TASAHW in eradicating BVD and achieving its objective under Focus Area 3B. Figure 4.2.3 shows that since the introduction of the TASAHW in 2015 the prevalence of PI births has halved to 3,814 calves (0.17% of the total calves tested).

The TASAHW is one of a number of measures that have led to this reduction as a national BVD eradication programme has been developed by a cross-industry BVD Implementation Group led by Animal Health Ireland. The programme had been operating on a voluntary basis in 2012 and since 1st January 2013 it is compulsory and is supported by legislation which:

- Requires testing of all new-born calves
- Bans the sale of calves without negative PI (Persistently Infected) result
- Requires compulsory follow-up testing where PI’s are infected
- Herd restriction notices (recently introduced) on non-disposal of PI’s, including neighbour notifications where a herd owner retains PI.

The incidence of the disease has fallen since the national eradication programme commenced from 0.7% in 2013 to 0.2% in 2016.

**Figure 4.2.3 Number of Persistently Infected BVD Births**

![Graph showing the number of Persistently Infected BVD births from 2013 to 2016](source: Animal Heath Ireland)

Figure 4.2.4 shows a breakdown of the proportion of herds with a positive or inconclusive result for BVD. The national eradication programme which includes the TASAHW under Measure 2 of Ireland’s RDP has resulted in over 64,500 (75%) of the 83,000 breeding herds now having acquired negative herd status (NHS) based on all animals in the herd having a known negative status and absence of a PI for at least 12 months. In 2016, 3.18% (2,600) of herds had one or more positive or inconclusive result which is a significant decrease from the 11.35% of herds in 2013. 1,430 of these have availed the BVD on farm advice offered through the TASAHW under Measure 2 of Ireland’s RDP.
4.2.5 Conclusions

The Targeted Advisory Service on Animal Health and Welfare (TASAHW) aims to target investment at a number of animal diseases in order to limit the animal health and financial costs associated with these diseases.

Surveys carried out on private veterinary practitioners (PVPs) experiences of the training provided under TASHAW in 2016 show a clear improvement in the development of the knowledge base of the sector on Bovine Viral Diarrhoea (BVD) and Johne’s Disease (JD). 98% of PVPs that participated in the BVD training courses felt that the topics covered under the training were relevant or very relevant while 100% of participants felt that this was the case with the topics covered under JD training.

The TASAHW is one of a number of measures outlined in the national BVD eradication programme. Data from Animal Health Ireland shows that since the introduction of the TASAHW in 2015 the prevalence of PI births has halved to 3,814 calves (0.17% of the total calves tested).
4.3 The Targeted Agricultural Modernisation Schemes (TAMS II) (Measure 4, Submeasure 4.1)

Relevant Focus Areas and Common Evaluation Questions

- **FA 2A:** To what extent have RDP interventions contributed to improving the economic performance, restructuring and modernization of supported farms in particular through increasing their market participation and agricultural diversification?

- **FA 2B:** To what extent have RDP interventions supported the entry of adequately skilled farmers into the agricultural sector and in particular, generational renewal?

- **FA 3B:** To what extent have RDP interventions supported farm risk prevention and management?

- **FA 4A:** To what extent have RDP interventions supported the restoration, preservation and enhancement of biodiversity including in Natura 2000 areas, areas facing natural or other specific constraints and HNV farming, and the state of European landscape?

- **FA 5B:** To what extent have RDP interventions contributed to increasing efficiency in energy use in agriculture and food processing?

- **FA 5D:** To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

### 4.3.1 Background

The objective of the Targeted Agricultural Modernisation Schemes (TAMS II) is to encourage capital investment in a number of target areas which will promote, in particular, increased competitiveness and sustainability in those sectors in which grant-aid will be made available. The standard rate of grant aid is 40%, with a higher rate of 60% available to young farmers wishing to enter the sector or improve their farm holdings. A super ceiling investment of €80,000 per holding over the RDP lifetime is also in place for all TAMS schemes except one (Low Emission Slurry Spreading). TAMS II follows a similar structure to that which was in place for TAMS under the RDP 2007-2013 and contributes to a number of central themes in the farming sector, including:

- enabling growth and competitiveness;
- environmental and climate change issues;
- supporting increased efficiency of holdings;
- improved animal health and welfare;
- supporting young farmers wishing to enter the sector or improve their holdings.

Under the scheme €395m is provided for the following:

- Young Farmers Capital Investment Scheme (€114m)
- Dairy Equipment Scheme (€50m)
- Organic Capital Investment Scheme (€8m)
- Animal Welfare, Safety and Nutrient Storage Scheme (€170m)
- Low Emission Slurry Spreading (€10m)
- Pig and Poultry Investment Scheme (€17m)

A Tillage Scheme providing €26m in support opened in March of 2017.

Table 4.3.1 TAMS II Indicator data 2016

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>O4 - No of holdings/beneficiaries supported</th>
<th>O3 - No of actions/operations supported</th>
<th>O1 - Total Public Expenditure</th>
<th>O2 - Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>163</td>
<td>282</td>
<td>€1,913,697.99</td>
<td>€4,988,509.32</td>
</tr>
<tr>
<td>2B</td>
<td>59</td>
<td>59</td>
<td>€1,504,173.43</td>
<td>€2,648,748.38</td>
</tr>
<tr>
<td>3B</td>
<td>21</td>
<td>41</td>
<td>€32,680.04</td>
<td>€81,700.18</td>
</tr>
<tr>
<td>4A</td>
<td>1</td>
<td>1</td>
<td>€4,990.00</td>
<td>€12,475.00</td>
</tr>
<tr>
<td>5B</td>
<td>1</td>
<td>2</td>
<td>€12,104.24</td>
<td>€30,260.60</td>
</tr>
<tr>
<td>5D</td>
<td>46</td>
<td>46</td>
<td>€494,256.08</td>
<td>€1,257,989.58</td>
</tr>
<tr>
<td>Total</td>
<td>291</td>
<td>431</td>
<td>€3,961,901.78</td>
<td>€9,019,683.06</td>
</tr>
</tbody>
</table>

Source: DAFM

Table 4.3.2 TAMS II 2023 Target Values

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>No of holdings/beneficiaries supported (2023 target)</th>
<th>Total Public Expenditure (2023 target)</th>
<th>Total Investment (2023 target)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>12,750</td>
<td>€155,300,000</td>
<td>€388,250,000</td>
</tr>
<tr>
<td>2B</td>
<td>4,000</td>
<td>€114,000,000</td>
<td>€190,000,000</td>
</tr>
<tr>
<td>3B</td>
<td>-</td>
<td>€25,000,000</td>
<td>€62,500,000</td>
</tr>
<tr>
<td>4A</td>
<td>-</td>
<td>€70,700,000</td>
<td>€176,750,000</td>
</tr>
<tr>
<td>5B</td>
<td>400</td>
<td>€20,000,000</td>
<td>€50,000,000</td>
</tr>
<tr>
<td>5D</td>
<td>250</td>
<td>€10,000,000</td>
<td>€25,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>17,400</td>
<td>€395,000,000</td>
<td>€892,500,000</td>
</tr>
</tbody>
</table>

Source: DAFM, Ireland’s 2014-2020 RDP
TAMS II was launched in June 2015 and opens for applications in rolling three month tranches. Five tranches opened at regular intervals over 2015 and 2016 and approximately €4 million in grant aid has supported 291 beneficiaries to carry out over €9 million of on farm investments during this period. Over €11 million in grant aid has also been provided under this measure to support investments carried out from 2014 to 2016 under TAMS I. This is examined in the Transitional Measures section of this report (Section 4.14).

Due to the nature of the approval and payment system of this scheme there can be a substantial interval between the date of approval and the date of payment as applicants have 3 years from their approval date to complete their investment. This has led to very low numbers of completed investments with expenditure and beneficiary numbers well below their target values. Figure 4.3.1 below shows that over 10,500 applications were received in Tranches 1 to 5 throughout 2015-2016. Approvals are issuing on an ongoing basis and over 8,470 applications now been approved.

The Department has taken steps to address the uncertainty and unpredictability of expenditure under the scheme by shortening the window during which those that received approvals from Tranche 6 (opened January 2017) onwards can claim payment having received approval. Going forward all approvals issued will expire within one year where the approval relates to building work being carried out and 6 months where equipment is only required. This will improve the situation in terms of uncertainty surrounding when the funding will be drawn down but the issue of legacy commitments remains.

Figure 4.3.1 Number of TAMS II Applications by Tranche

![Chart showing number of TAMS II applications by tranche]

Source: DAFM
4.3.2 Methods applied

1. Qualitative survey of approved applicants to gather information on applicants’ behaviour and their intention to carry out investments approved under TAMS II.

2. Quantitative analysis using National Farm Survey (NFS) data to establish the baseline position of TAMS II participants and non-participants before the investments are completed. The NFS data will be used to evaluate results of these farms against their counterfactual (i.e. to calculate the changes that would have occurred without the specific programme intervention) throughout the lifetime of TAMS II. It will also be used to assess the impacts and results of support under the scheme on participant farms each year.

4.3.3 Findings

4.3.3.1 Survey of approved applicants

A phone survey on a sample of 257 farms that had investments approved under the TAMS but have not yet carried out this investment was carried out on behalf of DAFM. The purpose of the survey was to discover whether these farmers intend to carry out all of their approved investments, only some of the investments or none of the investments and the reasons for the delay. The following results emerged from the survey:

- 88% of farms surveyed indicated that they intended to carry out their investment, while only 6% indicated that they did not intend to proceed with the investment.
- 42% of farms intend to carry out their improved investment within 6 months, while a further 29% indicated that they will carry out the work within 1 year. This shows that expenditure under TAMS II is likely to increase substantially over the next period.
- 28% stated that “a fall in income due to a change in the price of agricultural commodities” was the main reason why the planned investments under TAMS have not been carried out to date. Other reasons included those who were “less optimistic about the future due to Brexit” (16%) and those who 13% stated that bank interest rates were too high (13%). 11% stated that they could not get access to credit for the matching funding.
- An increase in farm efficiency is the main reason cited for applying for TAMS support, with just one third of farmers claiming that they would carry out the same level of investment without a grant.
- Borrowing from a bank/financial institution (54%) and own savings (33%) are the main sources used to access additional funds to complete the investments.

4.3.3.2 Baseline Analysis

The National Farm Survey (NFS) is conducted by Teagasc on an annual basis and is a random, nationally representative sample, of over 1,000 farms. Each farm is assigned a weighting factor so that the results of the survey are representative of the national population of farms. For this analysis, individual TAMS approvals up to end 2016 were matched with the most recent NFS data available (Teagasc, 2015).
There are a number of limitations to this piece of analysis and a series of recommendations on how these can be addressed in order to improve the evaluation framework over the lifetime of TAMS II are also outlined in this report.

As is shown in Table 4.3.3, each strand of investment under TAMS II has a specific objective, as defined in the intervention logic of the RDP, and has been allocated funding from the overall scheme funding envelope of €395 million.

**Table 4.3.3 TAMS Scheme objectives and funding allocation.**

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>TAMS</th>
<th>Objective</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>Animal Housing, Dairy &amp; Organic Capital Equipment</td>
<td>To improve the economic performance, restructure and modernise of supported farms i.e. competitiveness</td>
<td>155,300,000.00</td>
</tr>
<tr>
<td>2B</td>
<td>Young Farmers' Capital Investment</td>
<td>To support the entry of adequately skilled farmers into the agricultural sector i.e. generational renewal</td>
<td>114,000,000.00</td>
</tr>
<tr>
<td>3B</td>
<td>Animal Welfare and Farm Safety</td>
<td>To support farm risk prevention and management</td>
<td>25,000,000.00</td>
</tr>
<tr>
<td>4A</td>
<td>Farm Nutrient Storage</td>
<td>To improve water management i.e. reduce nutrient loss from farms</td>
<td>70,700,000.00</td>
</tr>
<tr>
<td>5B</td>
<td>Pig &amp; Poultry Investments</td>
<td>To increase efficiency in energy use in agriculture and food processing</td>
<td>20,000,000.00</td>
</tr>
<tr>
<td>5D</td>
<td>Low Emissions Slurry Spreading (LESS) equipment</td>
<td>To reduce GHG and ammonia emissions from agriculture</td>
<td>10,000,000.00</td>
</tr>
</tbody>
</table>

Source: DAFM

TAMS approvals were used to establish the baseline position of TAMS, and non-TAMS participants captured in the NFS. Going forward the baseline position of TAMS and non TAMS participants can be monitored to assess progress in achieving the stated objectives (improving competitiveness, generational renewal, reduce emission etc.). Approvals under TAMS were used instead of payments due to the low level of payments made under TAMS to end 2016. Matching payment data with 2015 NFS data would have resulted in small sample with limited statistical significance.

53 farms within Teagasc’s NFS sample were matched as having been approved under TAMS II which equates to over 2,600 farms when the weighting factors are assigned and represents 3% of the total population of farms within the NFS. The number of farms matched is also broken down by farm type in Tables 4.3.4 and 4.3.5 below. The majority of the matched farms were in the dairy sector which is in line with data collected on TAMS beneficiaries which shows that 60.9% of payments were claimed by dairy farms.
Table 4.3.4 NFS sample matched with TAMS participants (unweighted)

<table>
<thead>
<tr>
<th>NFS sample 2015</th>
<th>Dairy</th>
<th>Cattle</th>
<th>Sheep</th>
<th>Tillage</th>
<th>Mixed Livestock</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-TAMS farms</td>
<td>278</td>
<td>347</td>
<td>120</td>
<td>80</td>
<td>20</td>
<td>845</td>
<td>94</td>
</tr>
<tr>
<td>TAMS farms</td>
<td>41</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>53</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>352</td>
<td>124</td>
<td>81</td>
<td>22</td>
<td>898</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Teagasc NFS

Table 4.3.5 NFS sample matched with TAMS participants (weighted)

<table>
<thead>
<tr>
<th>NFS sample 2015</th>
<th>Dairy</th>
<th>Cattle</th>
<th>Sheep</th>
<th>Tillage</th>
<th>Mixed Livestock</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-TAMS farms</td>
<td>13,897</td>
<td>45,265</td>
<td>12,473</td>
<td>5,068</td>
<td>4,940</td>
<td>81,643</td>
<td>97</td>
</tr>
<tr>
<td>TAMS farms</td>
<td>1,742</td>
<td>353</td>
<td>285</td>
<td>38</td>
<td>198</td>
<td>2,616</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>15,639</td>
<td>45,618</td>
<td>12,758</td>
<td>5,106</td>
<td>5,138</td>
<td>84,259</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Teagasc NFS

The indicators examined below will be monitored over the entire programme period allowing an assessment of the impact of TAMS investments on their stated objectives under competitiveness, generational renewal, nutrient management and emissions. The 2015 data utilised in this analysis relates to a period of time before any TAMS investments would have taken place and as a result the figures below can be considered as a baseline position of TAMS participants and non-TAMS participants.

i. Competitiveness: Gross Output per Annual Work Unit (a complimentary result indicator), gross output (€) per hectare of utilised agricultural area (UAA) and family farm income will be used to assess progress in improving competitiveness.

ii. Generational Renewal: The age profile of farmers under TAMS will be used to assess generational renewable and the extent that farms are demographically non-viable (farmer is aged over 60, and there are no members of the farm household younger than 45).

iii. Nutrient management: The nitrogen balance indicator will be used to assess the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies.

iv. Emissions: The average Green House Gas emission per hectare indicator is used to assess progress in reducing GHG emissions.

The indicator values for TAMS and non TAMS participants will be monitored every year using the NFS data and the “net” effect of the RDP invention will be quantified. The results will be expressed in “net” terms to include any indirect effects (deadweight loss, leverage, substitution, etc.) and to exclude any effects that cannot be attributed to the RDP intervention.
i. Competitiveness

Gross Output per Annual Work Unit

The Change in agricultural output on supported farms per Annual Work Unit (AWU) is a complementary result indicator which is required to be calculated when evaluating under Ireland’s RDP. Gross output for the farm is calculated as total sales, less purchases of livestock, plus the value of farm produce used in the house, plus receipts for hire work, services, fees etc. It also includes net change in inventory. All non-capital grants, subsidies and premiums are also included. Annual Work Unit is the total labour input of a farm including family and unpaid labour as well as paid labour.

The Gross Output per AWU indicator intends to capture the increase in competitiveness on farms receiving RDP support. This can be achieved either through increasing output for the same use of resources, or maintaining output levels but reducing the resources required to produce them. Labour is used as the resource unit for comparison because it is often the key variable within farming systems and is closely linked to providing adequate household income. For example reducing the farm labour requirement can free labour for off-farm employment or diversification.

Figure 4.3.2 below shows that TAMS participants had a higher average gross output per AWU than non-participants in 2015. These figures suggest that TAMS participants are more productive, in terms of producing more output, than non TAMS participants for the same level of resources. The composition of TAMS participants which comprised of larger farms mainly within the Dairy sector would also contribute to a higher Gross Output per AWU.

Any investments supported under the Animal Housing, Organic Capital Investment and Dairy Equipment schemes within TAMS II are expected to contribute to further increasing the value of Gross Output per Annual Work Unit for TAMS participants over the life time of the RDP and for a number of years thereafter.

Figure 4.3.2 Average (€) Gross Output per Annual Work Unit

Source: Teagasc NFS
**Gross output (€) per hectare of utilised agricultural area**

Gross output (€) per hectare of utilised agricultural area is a useful measure of the economic productivity of land. Utilised Agricultural Area (UAA) is the area under crops and pasture plus the area (unadjusted) of rough grazing. It is the total area owned, plus area rented, minus area let, minus area under remainder of farm. Baseline 2015 data in Figure 4.3.3 shows that the average Gross Output per hectare is 76% higher for TAMS II participants than for those outside the scheme. Again this is due to the larger number of TAMS participants that are dairy farmers who tend to have higher gross output than other farm systems. Data from the 2015 Teagasc NFS report\(^{10}\) shows that the average gross output on all dairy farms was €180,000, 125% higher than the average farm within the survey.

Investments aimed at improving competitiveness and productivity of the land are expected to increase the average Gross Output per hectare of UAA. The increase would be achieved either by increasing output for the same amount of land, or maintaining output levels but reducing the amount of land required to produce them. Any investments supported under the Animal Housing, Organic Capital Investment and Dairy Equipment schemes within TAMS II are expected to contribute to further increasing the value of Gross Output per hectare of UAA for TAMS beneficiaries.

**Figure 4.3.3 Average (€) Gross Output per ha of UAA**

![Graph showing average Gross Output per ha of UAA for Non-TAMS farms versus TAMS farms. The average for Non-TAMS farms is €1,659, while for TAMS farms it is €2,927.]

Source: Teagasc NFS

**Family Farm Income**

Family Farm Income is calculated by taking total net expenses from the gross output of the farm. It represents the return on all labour, management and capital investment on the farm. Figure 4.3.4

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shows that farms participating in TAMS II have a family farm income of €72,787. This is also in line with earlier findings, as TAMS participants are mainly comprised of those within the dairy sector and in turn have higher output levels than other farm systems. Dairy farms have been consistently the most profitable farms over the last number of years and recorded an average Family Farm Income of €62,141 in 2015.

Investments under the Animal Housing, Organic Capital Investment and Dairy Equipment strands that increase output levels or reduce total farm expenses while other factors remain constant will improve competitiveness and increase Family Farm Incomes amongst TAMS II participants.

**Figure 4.3.4 Average (€) Family Farm Income**

![Graph showing average Family Farm Income](image)

Source: Teagasc NFS

ii. Generational Renewal

**High Age Profile**

Farms are defined as having a high age profile if the farmer is aged over 60, and there are no members of the farm household younger than 45. This indicator shows whether the farm is likely to be demographically viable.

2015 baseline data shows that 94% of farms approved under TAMS II have a non-high age profile which may be attributed to the targeted support of younger farmers through the Young Farmer Capital Investment Scheme and the associated 60% top up grant rate of aid. These farms are already highly productive and profitable compared to those outside the scheme so this shows that a conscious effort is being made to improve the performance of these farms for future generations that will contribute to the promotion of generational renewal.
iii. Nutrient Management

**Nitrogen Balance**

The Nitrogen balance per hectare farmed is calculated using a nutrient accounting approach based where nitrogen exports from the farm are subtracted from nitrogen imports to the farm. Nitrogen exports comprise of the Nitrogen component of milk, crops, wool and livestock sold (including livestock for slaughter) from the farm. Nitrogen imports are composed of fertilisers applied, feeds purchased and livestock brought onto the farm.
The Nitrogen balance is used as an indicator of the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies. It also takes account of management practices most directly under the farmers control and is used to assess agronomic efficiency as well as the environmental sustainability of a farm.

Figure 4.3.7 shows that TAMS II participants had a higher average nitrogen surplus in kilograms per hectare than farms outside of the scheme and this can be attributed to the higher productivity levels and larger scale of these farms.

Proper storage and management of slurry in particular can allow for its application on the land as a substitution for chemical fertilizers. Treacy et al. 2008\textsuperscript{11} examined the farm-gate Nitrogen balances on 21 intensive dairy farms in the south west of Ireland over a 4 year period and found that the decline of the mean annual farm-gate Nitrogen surplus between 2003 and 2006 can be attributed largely to decreases in the quantities of fertilizer N. This reduction was made possible through good slurry management and by increasing the proportion of slurry applied during the spring. Investments under the Farm Nutrient Storage strand within TAMS II such as manure pits and concrete tanks will contribute to lowering the nitrogen surplus on these farms. This will also in turn lead to lower Greenhouse Gas Emissions as a secondary effect and this is examined in more detail in the next section.

\textbf{Figure 4.3.7 Average Nitrogen surplus (kg) per ha}

\begin{center}
\includegraphics[width=\textwidth]{figure437.png}
\end{center}

Source: Teagasc NFS

\textsuperscript{11} [http://t-stor.teagasc.ie/bitstream/11019/628/1/farm-gate.pdf](http://t-stor.teagasc.ie/bitstream/11019/628/1/farm-gate.pdf)
iv. Emissions

*Greenhouse Gas Emissions*

Greenhouse Gas Emissions (GHG) emissions from agriculture are calculated using the Intergovernmental Panel on Climate Change (IPCC) coefficients and conventions. This approach estimates emissions associated with agricultural production activity within the farm gate. Agricultural emissions categories include methane (CH4) emissions from enteric fermentation by ruminant livestock, methane and nitrous oxide (N2O) emissions from the production and storage of livestock manures; and nitrous oxide emissions resulting from the application of manures and synthetic fertilisers to agricultural soils.

Figure 4.3.8 shows that average Greenhouse Gas Emissions (GHG) emissions per hectare in 2015 were higher for farms participating in TAMS II than those outside the scheme.

Investment items available under the Low Emission Slurry Spreading Scheme (LESS) and the Farm Nutrient Storage strand aim to support more efficient use of nutrients, resulting in lower use of artificial fertiliser and in turn reduced run-off from the land leading to improved water quality and lower emissions. In addition the Green Low-carbon Agri-environment Scheme (GLAS) under Measure 10 of Ireland’s RDP provides support to farmers for low emission slurry spreading with the condition that LESS equipment is used.

*Figure 4.3.8 Average Greenhouse Gas Emissions per ha (kg CO2 equivalents)*

![Graph showing average Greenhouse Gas Emissions per ha (kg CO2 equivalents)](image)

Source: Teagasc NFS
4.3.3 Problems encountered influencing the validity and reliability of evaluation findings

1. Low uptake in terms of TAMS II participants completing their investment and receiving payment. As a result, NFS data could not be matched with applicants who had received a payment under TAMS II.

2. Teagasc NFS data had to be matched with TAMS beneficiaries across the overall TAMS scheme i.e. not at individual TAMS strand.

3. As a result, it was not possible to establish suitable control groups within the non-TAMS farms.

4. NFS data or the indicator data collected did not provide sufficient data on farm risk prevention and management related to animal welfare and farm safety investments and energy efficiency in the pig and poultry sectors.

4.3.4 Conclusions

Data is based on approvals due to the low number of payments made under TAMS II to date. The impacts of the scheme can only be examined properly once a significant number of investments are completed and payments have been made to farmers.

Results from a phone survey carried out on those that had investments approved under the TAMS II but have not yet carried out this investment show that 88% of applicants will carry out their investment with 70% of these planning to complete the investment within 1 year. This shows that expenditure under TAMS II is likely to increase substantially over the next period.

The analysis of Teagasc National Farm Survey Data shows that on average, TAMS participants are more productive and profitable than non-TAMS participants. Family farm income and both measures of Gross Output are significantly higher for TAMS participants than non-TAMS participants. The requirement to have matching funding to access grant aid may be impacting on the type of farmers applying for TAMS grants and ultimately those being approved into the scheme.

Due to their greater size and productivity levels TAMS participant farms are bigger contributors of GHG emissions and have larger nitrogen surpluses. Investment items available under the Low Emission Slurry Spreading Scheme (LESS) and the Farm Nutrient Storage strand along with other practices such as shorter storage periods of slurry can significantly reduce emission levels and nitrogen surpluses on these farms.
4.3.5 Recommendations

1. As more payment data becomes available, Teagasc NFS data should be matched with TAMS beneficiaries i.e. those where the investment has been completed and payment has issued.

2. Teagasc NFS data should be matched with TAMS beneficiaries at a greater level of detail than the overall scheme i.e. analysis should be conducted at the TAMS strand level. This would enable future evaluations to accurately assess the impact of TAMS investments on achieving the objectives of the scheme. However, it may be difficult to report by TAMS strand in the first few years of the scheme if the number of completed investments is low.

3. Further analysis should be conducted to establish suitable control groups taking into account the farm type and other relevant characteristics.

4. An additional survey could be carried out (as a supplement to the annual National Farm Survey) to address the areas currently not covered by NFS, or collected by the TAMS application process (indicator data). This should include questions on farm risk prevention and management related to animal welfare and farm safety investments and energy efficiency in the pig and poultry sectors.
4.4 GLAS Traditional Farm Buildings (Measure 7, Submeasure 7.6)

Relevant Focus Areas and Common Evaluation Questions

- FA 4A To what extent have RDP interventions supported the restoration, preservation and enhancement of biodiversity including in Natura 2000 areas, areas facing natural or other specific constraints and HNV farming, and the state of European landscape?

4.4.1 Background

GLAS Traditional Farm Buildings (GTFB) builds upon the success of the Heritage Buildings Scheme and is administered by the Heritage Council on behalf of the Department. It ensures that small traditional farm buildings and other structures, which are of significant cultural and heritage value, are restored and conserved for renewed practical agricultural use. These buildings can be important habitats for certain protected wildlife species, such as bats and birds and also help ensure continued knowledge of traditional building materials and techniques. This is a complementary measure to GLAS and therefore participation in GLAS is the prime eligibility condition.

The Heritage Council will carry out a pre and final inspection of every project. Works cannot commence until the prior inspection takes place and the conservation specification is agreed. All successful applicants must employ a conservation consultant to provide conservation advice, oversee the works to be carried out and sign off on completion. The cost of supervision can be included in the overall costs of the project for grant aid. Many farm buildings and farmyards provide roosting sites for bats, and nesting sites for birds that are protected by law. A bat/bird survey may be required to identify which species are present and how to carry out the works without adversely affecting them - for example altering the timing of the repair work or the material used. Up to 75% of the cost of the wildlife survey may be allowed in the grant allocation.

Support is made available to GLAS participants to carry out approved conservation works to traditional farm buildings, including roofs, outside surface of walls, windows and doors. Support is also provided for other related structures such as historic yard surfaces and landscape features around the farmyard such as walls, gate pillars and gates. To be eligible for the scheme, buildings and other related structure must have architectural or vernacular heritage character and make a contribution to their setting. Grants awarded cannot exceed 75% of the cost of the works with a maximum grant of €25,000 and a minimum grant of €4,000 available.

Table 4.4.1 GLAS Traditional Farm Buildings Indicator Data

<table>
<thead>
<tr>
<th>Indicator Description</th>
<th>2016</th>
<th>2023 Target value</th>
</tr>
</thead>
<tbody>
<tr>
<td>O3 - No. of actions/operations supported</td>
<td>48</td>
<td>-</td>
</tr>
<tr>
<td>O1 - Total Public Expenditure</td>
<td>€725,488.27</td>
<td>€6,000,000</td>
</tr>
<tr>
<td>O2 - Total investment</td>
<td>€1,048,686.88</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: DAFM
4.4.2 Methods applied

1. In order to further investigate the impacts of the GTFB, case studies examining the experience of three farms that received support under the GTFB are outlined below. All information was provided by the beneficiaries and is a self-assessment of the main activities, outcomes and lessons learned from undertaking projects as part of the GLAS Traditional Farm Buildings measure.

4.4.3 Findings

The first tranche of the GLAS Traditional Farm Buildings (GTFB) opened in April 2016 with a second tranche opening in November 2016. Over 500 applications were received under the first tranche and the first approvals of these applications began in July 2016. Over €700,000, 12% of planned expenditure was allocated to 48 farms in 2016 with 72 traditional buildings and 5 other related structures conserved. 75 protected species and 35 natural habitats were also found which shows the commitment of beneficiaries to protecting and conserving biodiversity where it existed by ensuring these habitats were not destroyed during the course of the work.

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**Case Study 1**

The work outlined in this case study aimed to restore two farm buildings (a barn and a coach house) on a family farm in Jeanville, Co. Kilkenny. These buildings were originally constructed in the 1800s and using traditional material and crafts to restore them to their original state would not have been possible without the grant aid available under the GTFB measure. Since the death of the original owner the new owners have been actively seeking financial support to save the buildings since 2012 as they had fallen into dereliction.

**Activities**

Work began in November 2016 and was completed in early January 2017. Before works could commence a wildlife survey was carried out by a professional surveyor from the Heritage Council wildlife panel to ascertain the species of bats or birds were roosting or nesting in the buildings. Three species of bats were identified as well as one bird species. The presence of the bats delayed the commencement of works until November 1st as the wildlife survey and derogation licence stipulated that works to roof be undertaken in the winter months, beginning in November.

The roof slates were completely stripped as the original roof timber of the barn and coach house had to be repaired and consolidated. A substantial portion of the original materials were retained and reused with a shortfall in the original slates being sourced from nearby Co. Wexford. Several trees that had grown atop the walls had to be removed. These walls were then rebuilt and flagstones that had crumbled slightly were also replaced where necessary.

16 door lintels were replaced using timber from elm trees grown on the farm and 15 windows were also restored to their original specifications. The coach house loft was “parged” as it had been originally. Parging is a traditional building craft and involves the application of lime mortar to the underside of the slating, if properly done, is the traditional and most effective means of draught-
proofing and unlike modern day breathable felt membranes, does not endanger bats. Finally the entire front face of the buildings and one gable end were completely repointed using funding outside of the grant aid provided under the GTFB as the maximum grant rate of €25,000 had been drawn down. This additional funding for this work came from the owner’s savings.

Results

The maximum grant of €25,000 was drawn down and the total cost of the project amounted to €51,350. A number of traditional building methods were used to restore the basic structure and historical integrity of two traditional farm buildings. The project also managed to preserve the home of 3 species of bat and 1 bird species—and the owners aim to establish a farm produce business from the newly restored buildings.

Lessons learned

Timing proved to be a particular issue as the presence of the various bat species meant that requirements of the derogation licence from the National Parks and Wildlife Service had to be met. This delayed the start date to November and meant that the work was carried out in unfavourable winter conditions which caused further complications.

Case Study 2

This case study examines the restoration of a shed which dates from the early 1800’s on a small sheep farm in Co. Tipperary. The owner of the farm is also a stone mason trained in the traditional craft of dry stone walling and working with lime mortars and traditional earth mortars, all necessary skills for the repair of old and traditional buildings. The owners were made aware of the GTFB through an online newsletter from the Heritage Council.

Activities

Work began in July 2016 and aside from a small quantity of timber, quick lime for tiny additions to mortar and some sand from a local quarry; all materials used came from beneath the subsoil of the farm land for making mortar to repair the building. This was in line with the original methods used to construct the building.

A detailed soil analysis identified the correct materials to design replacement mortars from the two types of clay on the farm land. One type of mortar identified utilised the Grey earth soil with the addition of coal fragments as coal mining was a huge industry in the area previously. This type of mortar was known as “Culm” and was recreated using the grey earth soil and coal dust to repair the walls of the shed. An estimated eight tonnes of mortar went back into the structure to fill any voids and replace pointing.

A wildlife survey found that there were no bats present in the building however jackdaws and sparrows, both protected species, were found nesting in the roof. Therefore the proposed work was
found not to adversely affect wildlife and no derogation licence was required. However, access for bats has been included in the building repairs to enhance the bat roost potential of the restored building.

![Repointing of the south wall with Replacement Mortar 3 (Source: Julia Gebel Thornton, 2016)](image)

### Results

The work was completed in October 2016 and a grant of €8,400 was provided with the total cost of the project amounting to €11,200. Some minor finishing touches will be completed in Spring/Summer 2017. These include lime pointing and roof painting which couldn’t be done due to frost and temperature problems in Winter 2016.

The newly renovated shed will provide a very healthy and clean environment for future lambing seasons. It has also hosted visits from the local secondary school to demonstrate ways of farming, building and living in the past along with a heritage week event highlighting the use of “Culm” in heating and mortar making.

The project also attributed to creating employment opportunities in the local areas as 6 individuals were involved during the various stages of construction.
Lessons Learned

Although the owner was a stone mason a significant amount of knowledge was developed through researching the old mortar and trying to replicate what had been used in the original construction of the restored building,
Case Study 3

The final case study examines roof and window repairs to a two-storey 18th century farm building, which is part of a large scale farm complex associated with a country house in Co Westmeath. These buildings are protected structures.

Activities

The work involved in this project included re-slating and carrying out some minor repairs to the timber roof structure including the replacement of some rafters. Existing ridge tiles were re-used, and reinstated with appropriate pointing and bedding mortar.

A wildlife survey was carried out to assess for the presence of protected species. Common Pipistrelle Bats were found to be roosting and feeding in the building while swallows were also found to be nesting in the roof. Following this survey a derogation license was required and obtained from the National Parks and Wildlife Service. The survey outlined a number of recommendations to ensure the bats were unharmed during the building process and these included:

- placing 4 timber joist type bat boxes in the building
- carefully removing the slates of the roof should be by hand
- any work should not take place in summer. Ideally the work should be done in late autumn or in spring.
- Not installing a breathable felt membrane

Due to the necessity of carrying out works over the winter to protect wildlife a natural cement mortar was chosen for its quick curing properties and for its suitability for a conservation project. Given the very severe frosty conditions at the time of works a natural cement and natural hydraulic lime mix was used for bedding ridge tiles as it was considered this would have the least risk of failure.

Results

Work began in July 2016 and finished in December 2016 and grant of €18,000 was drawn down for the repair and conservation to the roof and windows of an 18th century stone agricultural building. The total cost of these works came to €24,000. These buildings will be used for the housing of animals on the farm and ensured the conservation of a habitat for a protected species of bat.
Lessons Learned

The original deadline for completion of the project was October 2016 but this was pushed back so that the requirements of the derogation licence to protect the bat roost found were met. This delay meant that the specification for the bedding and pointing mortar of the ridge tiles was slightly changed to cope with the frosty conditions experienced during the works in November. It would have been preferable to have carried out the works at a time of the year more conducive to the use of lime mortars however a natural cement mortar was used instead.
4.4.4 Problems encountered influencing the validity and reliability of evaluation findings

Secondary effects are not being fully captured. For example the scheme will facilitate job creation (FA 6A) due to the labour intensive nature of the traditional techniques used in the restoration of buildings.

There is a lack of available data on the type of protected species and habitats supported under the GLAS TFB.

4.4.5 Conclusions

Over €700,000 was allocated to 48 farms under the GLAS Traditional Farm Buildings (GTFB) measure in 2016. Work was carried out on 72 buildings and 5 other related structures while 75 protected species and 35 natural habitats found within these buildings were undisturbed during the restoration process.

Three case studies on beneficiaries were carried out to assess the type of work that has been supported under the GTFB to restore and preserve traditional farm buildings and to assess the measures carried out to ensure the enhancement of biodiversity on these farms. All beneficiaries of the three case studies examined stated that they would not have been able to carry out the restorations using traditional crafts and materials in the absence of the GTFB. A large portion of the original materials were retained in the restoration of the buildings identified in the case studies which enhances the environmental benefits of the GTFB as this reduces the amount of waste material created. Two of the case studies examples found of protected bat and bird species roosting...
and feeding within the buildings and following a wildlife survey ensured to alter the building specifications to ensure these protected species were unharmed during the building process.

A notable lesson learnt was to allow sufficient time to meet the requirements of a derogation licence when planning the project. Specific recommendations from the wildlife surveys state that any work to a building that contains a bat roost should not take place in summer and that ideally the work should be done in late autumn or in spring. This led to the delay in finishing work, such as painting and pointing which are best carried out in favourable weather conditions. Delays due to derogation license requirements also led to a change in the type of mortar used in one building from the original plan.

**4.4.6 Recommendations**

1. Indicator data should be collected on the floor size (m²) of buildings restored as building floor sizes supported under the GLAS Traditional Farm Buildings (GTFB) to date ranges from approx. 20m² to 200m².

2. Traditional building crafts and methods used to restore Traditional Farm Buildings are more labour intensive than some of the modern techniques. There will be an increase in the use of local professionals, contractors and material suppliers. Data should be collected to take account of the employment benefit in rural areas due to the restoration of buildings under the GTFB which will occur as a secondary effect of the scheme.

3. While data has been collected on the number of protected species and natural habitats found in buildings supported under the GTFB. This should be used to provide a detailed breakdown of the type of habitats and species conserved through the restoration of these buildings in order to further assess the impact the measure has on the enhancement of biodiversity.

**4.5 The Beef Data and Genomics Programme (BDGP) (Measure 10, Submeasure 10.1)**

**Relevant Focus Areas and Common Evaluation Questions**

FA 5D: To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

**4.5.1 Background**

The Beef Data and Genomics Programme (BDGP) requires participating farmers to undertake a range of actions designed to deliver accelerated genetic improvement in the quality of the beef herd and, as a result, the associated climate benefits. It aims to address widely acknowledged weaknesses in the maternal genetics of the Irish suckler herd, make a positive contribution to farmer profitability and reduce the greenhouse gas intensity of Ireland’s beef production. The BDGP requires farmers to undertake a 6 year commitment to carry out a predefined set of actions designed to underpin the delivery of a more climate friendly suckler herd. These actions include:
• record keeping and event recording;
• genotyping;
• a replacement strategy (that the animals identified as being of superior genetic merit, with lower associated GHG emissions, are then utilised as replacement stock on participating herds); and
• completion of the Carbon Navigator.

The objective of the scheme is to collect data on maternal traits of suckler cows from commercial farms to feed into a breeding index (which ranks the efficiency of animals on a star based system, with 5 star being the most efficient) which can inform farmer in selecting robust and resource efficient suckler cow replacements. Collecting data centrally across all farms and breeds increases the reliability of the index more rapidly than if these traits were selected by individual farmers or breed societies.

To further support the BDGP, the Knowledge Transfer and BDGP training submeasures under Measure 1 of Ireland’s RDP allow BDGP beneficiaries to improve their understanding of genomics data collection and breeding selection.

Table 4.5.1 BDGP Mandatory Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2023 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1-Total public expenditure</td>
<td>€28,989,048.42</td>
<td>€50,801,059.55</td>
<td>€280,900,000</td>
</tr>
<tr>
<td>O5-Total area (Ha's)</td>
<td>621,674.10</td>
<td>909,042.54</td>
<td>538,490</td>
</tr>
<tr>
<td>O6-Physical area supported (Ha's)</td>
<td>236,155.20</td>
<td>334,830.03</td>
<td></td>
</tr>
<tr>
<td>O7-No. of contracts supported (Ha's)</td>
<td>15,914</td>
<td>23,185</td>
<td>35,000</td>
</tr>
</tbody>
</table>

Source: DAFM

Table 4.5.2 BDGP Additional Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of training days given (day = 8 hours)</td>
<td>0</td>
<td>462</td>
</tr>
<tr>
<td>No. of farmers receiving training</td>
<td>0</td>
<td>24,174</td>
</tr>
<tr>
<td>No. of animals genotyped</td>
<td>312,292</td>
<td>296,240</td>
</tr>
<tr>
<td>No. of carbon navigators completed</td>
<td>0</td>
<td>23,553</td>
</tr>
<tr>
<td>No. of BDGP reports issued to farmers</td>
<td>27,493</td>
<td>23,844</td>
</tr>
<tr>
<td>No. of calves with birth detailed recorded by Animal Events Sheet in BDGP herds</td>
<td>220,615</td>
<td>221,526</td>
</tr>
<tr>
<td>No. of cows, calves and stock bulls subject to BDGP data recording</td>
<td>1,106,160</td>
<td>1,069,134</td>
</tr>
<tr>
<td>No. of BVD PI's removed from BGDP herds</td>
<td>1,982</td>
<td>985</td>
</tr>
<tr>
<td>No. of 4/5 Star (on the maternal index) replacement heifers on the scheme herds</td>
<td>Not available until after October 2018</td>
<td></td>
</tr>
<tr>
<td>No. of calves per cow per year</td>
<td>0.83</td>
<td>0.84</td>
</tr>
</tbody>
</table>
Calving interval

<table>
<thead>
<tr>
<th>Change</th>
<th>402 days</th>
<th>394 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in the percentage of cows/heifers calving in 3 months?</td>
<td>N/A Too early in the Scheme</td>
<td></td>
</tr>
<tr>
<td>Change in the percentage of replacements calved at 22-26 months?</td>
<td>N/A Too early in the Scheme</td>
<td></td>
</tr>
<tr>
<td>Change in the length of grazing season?</td>
<td>N/A Too early in the Scheme</td>
<td></td>
</tr>
</tbody>
</table>

Source: DAFM

The BDGP launched in May 2015 and participants in the programme receive a payment of €142.50 per hectare for the first 6.66 payable hectares under the scheme, and €120 per payable hectare after that. Payments are made on an annual basis and each participant must sign up to a six year contract. Over 23,000 beneficiaries have been paid €79m in 2015 and 2016 which represents 28.4% of the total planned expenditure for the BDGP. Total area within the programme amounts to over 900,000 hectares while the amount of land not included for payment under any other Measure 10 scheme (i.e. GLAS and the Burren Programme) amounts to over 330,000 hectares.

Over 23,500 farmers completed a Carbon Navigator 2016. This is an online farm management package produced by Bord Bia and Teagasc and is a requirement of the BDGP. It measures environmental gains that can be made on farm by setting targets in key areas such as the length of grazing season or spring application of slurry. While it is too early in the programme to analyse the results/impacts of the carbon navigator, the carbon navigator will be updated annually on farms over the programme period and the impact will be monitored over the duration of the BDGP.

Over its lifetime the BDGP aims to lower emissions via support for increases in herd quality and efficiency. It aims to breed cows that are more fertile, docile and produce a calf per cow per year as opposed to reducing cattle numbers.

4.5.2 Methods applied

1. A detailed analysis of common and additional indicator data on a number of actions carried out under the BDGP to date.

2. External research is used to outline the predicted improvements in GHG emissions intensity expected from genetic progress that will arise from the BDGP and associated breeding strategies using the traits under the Irish Cattle Breeding Federation (ICBF) Beef Maternal Replacement Index.

3. Quantitative analysis using National Farm Survey (NFS) data to establish the baseline position of BDGP participants and non-participants. The NFS data will be used to evaluate results of these farms against their counterfactual (i.e. to calculate the changes that would have occurred without the specific programme intervention) throughout the lifetime of the BDGP. It will also be used to assess the impacts and results of support under the scheme on participant farms each year.
4. It is intended that the BDGP will also be the subject of an independent focused mid-term evaluation (year 3 of the intervention) as part of the on-going monitoring and evaluation of the scheme.

4.5.3 Findings

4.5.3.1 Analysis of Performance Indicators

One of the key measures determining the productivity of suckler beef cows is the calving interval. Calving interval describes the number of days between successive calvings and requires farmers to adhere to good management, breeding and genetics practices. Data for BDGP beneficiaries show that the calving interval improved by 8 days between 2015 and 2016 but is still some way off the optimal target of 365 days. Figure 4.5.1 below shows that those within the BDGP have a slightly better calving interval rate compared to the average farm in the Irish beef sector (5 days less in 2015 and 2016 respectively).

**Figure 4.5.1 Calving Interval (days)**

<table>
<thead>
<tr>
<th>Year</th>
<th>BDGP Beneficiaries</th>
<th>Beef Calving Statistics (National Averages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>402</td>
<td>407</td>
</tr>
<tr>
<td>2016</td>
<td>394</td>
<td>399</td>
</tr>
</tbody>
</table>

The calf per cow per year is another key performance indicator of a herd’s fertility. This is calculated by dividing the number of live calves at 28 days by the number of eligible females in the herd over 22 months of age. The average calf per cow per year for BDGP beneficiaries has seen a very marginal improvement from 0.83 in 2015 to 0.84 in 2016. This means that in a 100 cow suckler herd the average farmer in 2016 is weaning 84 calves from 100 cows. The optimal target calf per cow per year is 0.95.

With a longer grazing season, there is less need for silage and concentrate supplementation which in turn reduces the greenhouse gas emissions generated. Data on this indicator will be collected as part of completing the Carbon Navigator under the BDGP however it is too early in the scheme to analyse their results at this stage.

4.5.3.2 Relevant External Research
Quinton et al. 2016 analysed the predicted improvements in GHG emissions intensity expected from genetic progress that will arise from the BDGP and associated breeding strategies using the traits under the Irish Cattle Breeding Federation (ICBF) Beef Maternal Replacement Index.

Table 4.5.3: Effects of Replacement Index traits on gross GHG emissions and system GHG emissions intensity for an age-constant slaughter system, and predicted trait-wise responses in GHG emissions intensity due to genetic gain in the Replacement Index. Source: (Quinton et al. 2016)

<table>
<thead>
<tr>
<th>Part</th>
<th>Trait (unit)</th>
<th>Effect on Gross GHG (kg CO₂e / trait unit)</th>
<th>Effect on GHG intensity (kg CO₂e/kg meat /trait unit/year)</th>
<th>Response in GHG intensity (kg CO₂e/kg meat /trait unit/year/€ index)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf</td>
<td>Mortality (%)</td>
<td>0</td>
<td>0.14524</td>
<td>-0.0003297</td>
</tr>
<tr>
<td></td>
<td>Carcass Weight (kg)¹</td>
<td>0</td>
<td>-0.02498</td>
<td>0.0005131</td>
</tr>
<tr>
<td></td>
<td>Carcass Conformation (score)</td>
<td>0</td>
<td>-0.14829</td>
<td>0.0002507</td>
</tr>
<tr>
<td></td>
<td>Carcass Fat (score)</td>
<td>0</td>
<td>0.10857</td>
<td>0.0001455</td>
</tr>
<tr>
<td></td>
<td>Feed Intake (kg DM)</td>
<td>0.583</td>
<td>0.00107</td>
<td>0.0000005</td>
</tr>
<tr>
<td>Cow</td>
<td>Cow Survival (%)</td>
<td>0</td>
<td>-0.20715</td>
<td>-0.0039989</td>
</tr>
<tr>
<td></td>
<td>Calving Interval (d)</td>
<td>-1.232</td>
<td>0.06428</td>
<td>-0.0018198</td>
</tr>
<tr>
<td></td>
<td>Age at First Calving (d)</td>
<td>3.167</td>
<td>0.01106</td>
<td>-0.0005025</td>
</tr>
<tr>
<td></td>
<td>Cow Live Weight (kg)</td>
<td>1.864</td>
<td>0.02336</td>
<td>-0.0026804</td>
</tr>
<tr>
<td></td>
<td>Heifer Live Weight (kg)</td>
<td>5.483</td>
<td>0.00383</td>
<td>-0.0004393</td>
</tr>
<tr>
<td></td>
<td>Cull Cow Carcass Weight (kg)</td>
<td>0</td>
<td>-0.00001</td>
<td>0.0000004</td>
</tr>
</tbody>
</table>

Total = -0.0088604

¹ For weight-constant slaughter system, gross GHG = -8.844 kg CO₂e/kg, GHG intensity = -0.01629 kg CO₂e/kg meat/kg/year, response = 0.0003347 kg CO₂e/kg meat/kg/year/€ index.

Effects of index traits on gross GHG and annual emissions intensity for an age-constant slaughter endpoint system are shown in Table 4.5.3. Increased survival rates, growth to slaughter, carcass muscling (conformation), and decreased feed inputs, carcass fat, calving interval, and age at maturity were all predicted to reduce system-wide GHG intensity. Based on current genetic trends in index traits, genetic gain was predicted to reduce GHG intensity on a system-wide basis by 0.009 kg CO₂e/kg meat/year/€ index value.

4.5.3.3 Baseline Analysis for Counterfactual Study of BDGP Beneficiaries

The National Farm Survey (NFS) is conducted by Teagasc on an annual basis and is a random, nationally representative sample, of over 1,000 farms. Each farm is assigned a weighting factor so that the results of the survey are representative of the national population of farms. The survey provides data on a range of economic, environmental and social indicators and will allow for a rigorous counterfactual analysis of RDP beneficiaries and non-beneficiaries.

12 Effects of genetic gains in the Irish beef maternal replacement index on greenhouse gas emissions (Quinton et al. 2016)
The indicators examined below will be monitored over the entire programme period allowing an assessment of the impact of the BDGP on its stated objectives under, nutrient management and emissions. The 2015 data utilised in the figures below can be considered as a baseline position of BDGP beneficiaries and non-TAMS beneficiaries.

i. Nutrient management: The nitrogen balance indicator will be used to assess the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies.

ii. Emissions: The average Green House Gas emission per hectare indicator is used to assess progress in reducing GHG emissions.

Following the matching exercise, 305 farms within the Teagasc NFS were paid under the BDGP which equates to over 34,000 farms when the weighting factors are assigned. Table 4.5.4 shows that the majority of farms that have been paid under the BDGP are in the cattle and sheep sectors.

<table>
<thead>
<tr>
<th>System</th>
<th>BDGP (Weighted)</th>
<th>Non-BDGP (Weighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>340</td>
<td>15,299</td>
</tr>
<tr>
<td>Cattle</td>
<td>27,175</td>
<td>18,375</td>
</tr>
<tr>
<td>Sheep</td>
<td>4,959</td>
<td>7,799</td>
</tr>
<tr>
<td>Tillage</td>
<td>680</td>
<td>4,426</td>
</tr>
<tr>
<td>Mixed Livestock</td>
<td>1,800</td>
<td>3,338</td>
</tr>
<tr>
<td><strong>Total (Weighted)</strong></td>
<td><strong>34,954</strong></td>
<td><strong>49,237</strong></td>
</tr>
<tr>
<td><strong>Total Sample Size (Unweighted)</strong></td>
<td><strong>305</strong></td>
<td><strong>592</strong></td>
</tr>
</tbody>
</table>

Source: Teagasc NFS

As there are a large number of cattle farming systems within the BDGP it is useful to examine the suckler cow herd size of farms across BDGP and non-BDGP farms. Figure 4.5.2 below shows that a larger portion of the more intensive suckler farms are part of the BDGP. While the majority of beneficiaries and non-beneficiaries have less than 20 suckler cows in their herd, 93% of farmers within the Teagasc NFS that have over 40 suckler cows are BDGP beneficiaries.
Figure 4.5.2 Suckler cow numbers per farm

Source: Teagasc NFS

i. Nutrient management

The Nitrogen balance per hectare farmed is calculated using a nutrient accounting approach based where nitrogen exports from the farm are subtracted from nitrogen imports to the farm. Nitrogen exports comprise of the Nitrogen component of milk, crops, wool and livestock sold (including livestock for slaughter) from the farm. Nitrogen imports are composed of fertilisers applied, feeds purchased and livestock brought onto the farm. The Nitrogen balance is used as an indicator of the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies. It also takes account of management practices most directly under the farmers control and is used to assess agronomic efficiency as well as the environmental sustainability of a farm.

While all farms within the BDGP have a significantly lower nitrogen surplus than those not in the scheme, distilling the data to cattle farms only shows that non-beneficiaries of the BDGP have a slightly lower surplus than those within the scheme.
Figure 4.5.3 Average Nitrogen surplus (kg) per ha

Source: Teagasc NFS

ii. Emissions:

Greenhouse Gas Emissions (GHG) emissions from agriculture are calculated using the Intergovernmental Panel on Climate Change coefficients and conventions. This approach estimates emissions associated with agricultural production activity within the farm gate. Agricultural emissions categories include methane (CH4) emissions from enteric fermentation by ruminant livestock, methane and nitrous oxide (N2O) emissions from the production and storage of livestock manures; and nitrous oxide emissions resulting from the application of manures and synthetic fertilisers to agricultural soils.

Figure 4.5.4 shows Greenhouse Gas Emissions per hectare for BDGP beneficiaries and non-beneficiaries. Average Greenhouse Gas Emissions per ha are significantly higher for those farms outside of the BDGP as these include dairy farms which are typically more productive and have larger herd sizes than other farm types. Data is also shown for farms that are classified as primary cattle enterprises. Non-beneficiaries of the BDGP under this classification have slightly lower average GHG per ha (3.9 CO2-eq. per ha) than beneficiaries of the scheme (4.1 CO2-eq. per ha).
iii. Secondary effects

While the primary objective of the BDGP is to reduce GHG emissions by improving the maternal genetics of the beef herd, it also aims to make a positive contribution to farmer profitability. This can be accounted for as a secondary contribution to improving economic performance as per Focus Area 2A. The profitability of a farm is measured as market based gross margin per hectare. This is gross margin excluding grants and subsidies, where gross margin is defined as gross output less direct costs. Improving herd efficiency to ensure emissions are reduced will also increase the productivity of suckler beef cows and in turn will improve the economic performance of the beef sector.

Baseline NFS data for 2015 shows that the average gross margin per hectare for BDGP beneficiaries was €534, 41% lower than all farms outside of the scheme (Figure 4.5.5). However when examining cattle farms only we can see that BDGP beneficiaries are slightly more profitable than non-beneficiaries.
4.5.4 Conclusions

While it is too early in the programme to fully analyse the results of the BDGP it is clear that improvements have been made in improving herd efficiency and fertility. Data for BDGP beneficiaries show that the calving interval improved by 8 days between 2015 and 2016 but is still some way off the optimal target of 365 days. The average calf per cow per year for BDGP beneficiaries has seen a very marginal improvement from 0.83 in 2015 to 0.84 in 2016. Improving the productivity of the herd by increasing the calf per cow ratio, lowering the replacement rate and by increasing the survival of cows in the herd and will lower methane production and in turn the reduce carbon footprint on these farms.

Baseline Teagasc NFS data shows that the majority of production intensive cattle farms are engaged in the programme and that BDGP beneficiaries have slightly higher emission rates than non-beneficiaries which indicates that the scheme is targeting optimal farms within Ireland’s cattle sector.
4.6 The Green Low-Carbon Agri-Environment Scheme (GLAS) (Measure 10, Submeasure 10.1)

Relevant Focus Areas and Common Evaluation Questions

- **FA 4A** To what extent have RDP interventions supported the restoration, preservation and enhancement of biodiversity including in Natura 2000 areas, areas facing natural or other specific constraints and HNV farming, and the state of European landscape?

- **FA 4B** To what extent have RDP interventions supported the improvement of water management, including fertilizer and pesticide management?

- **FA 4C** To what extent have RDP interventions supported the prevention of soil erosion and improvement of soil management?

- **FA 5D:** To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

- **FA 5E** To what extent have RDP interventions supported carbon conservation and sequestration in agriculture and forestry?

4.6.1 Background

The Green Low-Carbon Agri-Environment Scheme (GLAS) is designed to build on the success of REPS (Rural Environment Protection Scheme) and AEOS (Agri-Environment Options Scheme) which encouraged farmers to farm in an environmentally and climate friendly manner. It promotes agricultural actions which introduce or continue to apply agricultural production methods that aim to address the issues of climate change mitigation, water quality and the preservation of priority habitats and species.

GLAS is a highly targeted scheme. Key to its design is the identification of a number of Priority Environmental Assets (PEAs) – primarily vulnerable landscapes (including Natura and uplands), species at risk (primarily endangered birds), and high-quality watercourses. It has a three tier hierarchy and this structure is designed to ensure the targeted and prioritised delivery of environmental benefits.

Tier 1 is the most important Tier, comprising in Tier 1(a) of all the Priority Environmental Assets identified for support through GLAS, targeting vulnerable landscapes, species at risk and protection of high-status watercourses. Tier 1(b) also identifies a series of Priority Environmental Actions for intensive farmers, targeting climate mitigation and farmland birds. Organic farmers also receive priority access to the scheme under Tier 1 in their own right.

Tier 2 is the next most important tier and focuses in Tier 2(a) on water-quality, through protection of predetermined vulnerable water-courses, while also accepting proposals under Tier 2(b) from other farmers who are prepared to take on predetermined actions again targeting climate change mitigation and supporting farmland birds.
Finally, Tier 3 is largely a feeder menu of complementary environmental actions for applicants approved into Tiers 1 and 2. It consists of actions such as the protection of traditional hay meadows, species-rich pastures, important landscape features like archaeological monuments, hedgerows and stone-walls, as well as provision of bird, bat and bee nesting/roosting facilities and the planting of small groves of native trees.

The objectives of the Scheme are:

- To encourage actions at farm level that promote biodiversity, protect water quality, and help combat climate change.
- To contribute to positive environmental management of farmed Natura 2000 sites and river catchments in the implementation of the Birds Directive, Habitats Directive and Water Framework Directive.
- To promote and sustain attitudinal change amongst farmers.
- To achieve a balanced and effective environmental programme over the period of the RDP.

There are a number of core requirements that must be met in order for each applicant to receive payment. Each GLAS beneficiary must:

- Engage the services of an approved Advisor to prepare and submit the application for support.
- Undertake to have a Farm Nutrient Management Plan prepared for the holding by 31st March 2018. Actions involving reduced fertiliser inputs will be subject to a compulsory mid-term review of the nutrient management plan, as directed by the Department.
- Attend training in environmental practices and standards before the end of the second full calendar year in the scheme.
- Maintain records of delivery of commitments undertaken.

Support under GLAS is made by way of fixed-value packages for a minimum contract period of five years. Payments are calculated annually on the basis of qualifying actions delivered for the year in question. The maximum payment to any participant in GLAS is €5,000 in respect of a calendar year. Within budget limits, a higher-value package known as GLAS+ is also available to a limited number of farmers who take on particularly challenging actions which deliver an exceptional level of environmental benefit. This package includes additional payment of up to €2,000 per annum, or a total package value of €7,000. GLAS+ applies in cases where the combined cost of delivering mandatory actions for a number of Priority Environmental Assets exceeds the standard package value of €5,000 per annum. However, farmers managing extensive areas of endangered-bird habitat qualify automatically for GLAS+, without the need for a second PEA, and if they manage sufficient area. Farmers undertaking a combination of Minimum tillage and Catch crop actions may also qualify for GLAS+ in certain circumstances.
Table 4.6.1 GLAS Indicator Data 2015-2016

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>FA 4A</th>
<th>FA 4B</th>
<th>FA 4C</th>
<th>FA 5D</th>
<th>FA 5E</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1-Total Public Expenditure</td>
<td>€90,910,181.13</td>
<td>€10,479,838.24</td>
<td>€1,550,734.97</td>
<td>€843,408.80</td>
<td>€8,590,536.94</td>
<td>€112,374,700.08</td>
</tr>
<tr>
<td>O5-Total Area (ha)</td>
<td>794,985.04</td>
<td>1,390.19</td>
<td>14,800.99</td>
<td>57,799.33</td>
<td>74,357.15</td>
<td>943,332.70</td>
</tr>
<tr>
<td>O7-No of Contracts Supported</td>
<td>30,564</td>
<td>10,646</td>
<td>922</td>
<td>1,420</td>
<td>9,626</td>
<td>53,178</td>
</tr>
<tr>
<td>Number of Archaeological Sites Protected</td>
<td>3,217</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3,217</td>
</tr>
<tr>
<td>Area of AE Actions (ha)</td>
<td>81,075.81</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>81,075.81</td>
</tr>
<tr>
<td>Area of Natura Lands</td>
<td>369,153.33</td>
<td>343.23</td>
<td>2,354.74</td>
<td>7,121.74</td>
<td>9,402.09</td>
<td>388,375.13</td>
</tr>
<tr>
<td>Area of Commonage Lands</td>
<td>198,738.15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>198,738.15</td>
</tr>
</tbody>
</table>

Source: DAFM

26,263 farmers were approved into GLAS under the first tranche which opened in March 2015 and a further 11,685 farmers were approved under the second tranche of GLAS, which opened in October 2015. GLAS Tranche 3 which opened for a six week period from 4th November 2016 attracted a further 13,964 applicants. 53,178 farmers have now been approved into GLAS under the three tranches with the target of 50,000 participants set in the RDP achieved well in advance of the target date of end-2018. €112,374,700 has supported actions under GLAS on 943,332 hectares of farmland in 2015 and 2016. 80.8% of this has supported actions under Focus Area 4A of Ireland RDP which targets the restoration, preservation and enhancement of biodiversity.

4.6.2 Methods applied

1. A qualitative survey of GLAS beneficiaries to gather information on their motivations for joining GLAS as well as their experience with the scheme and the individual GLAS actions.

2. FA 4A, 4B, 5D and 5E – Preliminary results from a baseline summary evaluation report on the baseline monitoring output of 26 actions across Focus Areas 4A, 4B, 5D and 5E under GLAS. These actions will be surveyed again in advance of the 2019 AIR and the 2024 RDP Ex-post Evaluation. For each of the actions, a set of measures of success was agreed. They have been derived directly from the specific management requirements for individual actions, and are intended to provide an overall indication of the success or otherwise of the action in relation to the individual parcel. These management requirements are themselves based on a knowledge of the individual ecology of the species or habitat. The measures are intended to be easily monitored and evaluated to facilitate comparison with future surveys at each sample parcel to assess extent of change with time, and across the whole sample set to understand variations in findings.
3. FA 4B,4C and 5D: A quantitative modelling exercise that evaluates the effect of GLAS on water quality and climate by estimating nutrient (nitrate and phosphorus) and sediment losses in runoff to rivers and lakes, and the emission of climate change gases (nitrous oxide and methane), and the consequential mitigation potential from the intervention of GLAS actions.

4. FA 4C and 5D: Quantitative analysis using National Farm Survey (NFS) data to establish the baseline position of GLAS beneficiaries and non-beneficiaries. The NFS indicators will be monitored over the entire programme period allowing an assessment of the impact of RDP interventions on their stated objectives under nutrient management and emissions.
   i. Nutrient management: The nitrogen balance indicator will be used to assess the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies.
   ii. Emissions: The average Green House Gas emission per hectare indicator is used to assess progress in reducing GHG emissions.

The NFS data will be used to evaluate results of these farms against their counterfactual (i.e. to calculate the changes that would have occurred without the specific programme intervention) throughout the lifetime of GLAS. It will also be used to assess the impacts and results of support under the scheme on participant farms each year.

4.6.3 Findings

4.6.3.1 Attitudinal survey on GLAS beneficiaries

An attitudinal survey on 175 GLAS beneficiaries was conducted as part of a GLAS baseline evaluation study which has been carried out by RSK ADAS Ltd (formerly ADAS UK Ltd). Half of the scheme beneficiaries interviewed as part of the survey were part-time farmers while 49% were full-time farmers. The predominant farm types of participants were cattle rearing (40%) and mixed livestock farms (38%) and the age of the principle decision maker for more than half (57%) of the farms interviewed was between 45 to 64 years old. Nearly 80% of the farms interview were previously in an agri-environmental scheme and only 21% have not had participated in any other scheme. The actions undertaken by the respondents included: farmland birds (80%); low input permanent pasture (47%); farmland habitats (30%); Protection of watercourses from Bovines (29%); hedgerows (26%); Traditional Hay meadow (23%); Commonage (23%); arable grass margins/riparian margins (14%); catch crops (11%) and minimum tillage (4%).

Results from the survey indicate that the key drivers of participation in GLAS were increased income/the scheme payment (68%), increased income stability (62%) and increasing the sustainability of the farm for future generations (66%). Environmental reasons such as improving water quality (45%) and increasing the biodiversity on the farm (43%) were also considered as important influencing factors.

The majority of the farms interviewed were very positive about their experience with GLAS and more than two thirds of the farms reported that they intend to join any agri-environment measure in future RDPs. The majority (54%) of the farms claimed that participation in GLAS would increase their workload and 41% reported no change in the workload. 84% of respondents felt their
awareness of actions that can be taken to address environmental issues has increased due to participation in GLAS.

4.6.3.2 Baseline analysis of actions under the GLAS agri-environment scheme

RSK ADAS Ltd were contracted by the Department to carry out a longitudinal field survey analysis of actions under the GLAS scheme commencing in 2016 with the baseline survey report due for completion shortly by end of summer 2017.

The approach to monitoring has been designed to collect data that will inform measures of success for the individual action. For example, parameters such as sward height, species composition (e.g. how ‘rushy’ a sward is or to what extent a sward is unimproved, etc.) and the extent of scrub encroachment were important factors measured across a number of actions. Other measurement criteria used are specific to each action as requirements differ across the GLAS actions reflecting the different ecology of the target birds and other targeted interventions. For example, in the case of the chough action, it is widely recognised that this species requires a short, tightly grazed sward, with little scrub or bracken encroachment. This is because it is these conditions that allow the species to feed effectively. Therefore, the management requirements state:

- Produce a suitable sward by developing an appropriate grazing plan to maintain a tightly grazed short sward throughout the year on the areas within the GLAS contract; and
- Heather, bracken and scrub where present must be controlled where appropriate taking cognisance of other habitats and species that may exist onsite, but only between 1st September and 28th February annually.

So, in order to effectively gauge how well these management requirements have been met, measures of success have been selected on the basis of sward height and scrub encroachment (as well as other measures).

In the case of hen harrier, a varied sward height across the parcel was deemed to be a measure of success, because tussocky unimproved ground provides ideal foraging opportunities for this species. In order to measure this criterion effectively, a number of height measurements throughout the parcel sward were collected (one per sampling point location, at each of 30 sample points). These were then assessed against a range of height categories designed to assess the variation in height of the sward.

Data collected for the hen harrier also included the number of small mammals and birds that provide an indicator of availability of prey while in the case of wild bird cover, the success or otherwise of the planted species designed to benefit wild birds was recorded (i.e. how well the cover had grown (height and cover) and how many individual species were present). The presence of droppings was used to measure the extent of geese/swans in a sward while the evidence of rush cutting was used as a measure of success in the breeding waders action as rushy habitat, where interspersed with more low-growing vegetation is optimal breeding habitat for a number of waders (e.g. snipe, lapwing, redshank).
Surveyors also recorded the presence or absence of the target birds themselves (for the four species specific actions) and the total number of birds present for the wild bird cover action. This provided a more explicit indication of the desired result of each action. This was included as a measure of success for the wild bird cover action, indicating the success of the ‘crop’ as a food resource for wintering wild birds. However, it was not included as a measure of success for the other actions as presence or absence of the target species could be reflective of many factors outside the scope of the management itself.

Initial findings from this analysis show that, in general actions have been well targeted on a geographic basis across the sample parcels selected. The hen harrier parcels are in or close to Special Protection Areas (SPAs) established for this species, the chough parcels are on the west coast and at the inland population in Leitrim and the geese and swans parcels are in known areas for wintering populations of light-bellied brent goose, barnacle goose, Greenland white-fronted geese and whooper swan. Particularly strong sightings were evident for the chough action as sightings were recorded on or close to 17 of 30 targeted parcels. The majority of the parcels surveyed meet the both species and composition requirements under the chough action however only half of the parcels had a suitable sward height to meet the criterion to make it attractive to chough.

4.6.3.3 Modelling on Baseline Pollutant Losses from GLAS

As part of the GLAS Baseline evaluation, RSK ADAS Ltd have also conducted an evaluation report modelling pollutant emissions from agricultural land and the effect of changes in land management. This will provide a complementary intermediate between result and impact indicators by forecasting the potential long-term impact of GLAS management interventions in advance of long-term environmental monitoring for impact detection.

A number of key spatial environmental datasets have been created to enable agricultural pollutant modelling across the whole of Ireland. These datasets include monthly annual average climate variables, soil series and land cover. Data on soil series properties were also tabulated, and additional properties such as bulk density derived using pedo-transfer functions appropriate for Irish conditions.

In order to create the agricultural input data required for the pollutant models, representative farm systems have been created and populated with activity data (i.e. livestock, manure and fertiliser management data) for Ireland. This activity data was derived from a range of external surveys and information sources which included Teagasc fertilizer data and the Teagasc National Farm Survey data. Farm level agricultural census data collected by DAFM was used to determine the farm type for each holding, allowing for both the creation of crop and livestock statistics for each farm type and the creation of farm type crop and livestock numbers by WFD waterbody.

All these datasets were used to run a suite of agricultural pollutant models in order to produce annual average loads of nitrate, phosphorus, sediment, nitrous oxide and methane. The pollutant loads were produced at WFD waterbody scale, and the results could be disaggregated by farm type and the other coordinates of the source apportionment system (e.g. by flow pathway, or source area).

The evaluation has so far determined the following output and result indicators

- Areas of scheme participation
- Input loads controlled by farms in scheme (and the proportion of regional and national totals)
- Baseline pollutant loss from farms in scheme (and the proportion of regional and national totals)

Figure 4.6.1 shows the proportion of all agricultural land managed by farms in GLAS, which can be used to estimate the total proportion of the national pollutant load that could be controlled by GLAS.

**Figure 4.6.1 Percentage of all agricultural land managed by farms in GLAS, summarised by WFD waterbody**

Approximately one third of agricultural land is managed by farms in GLAS (Table 4.6.2), with the proportions roughly comparable for all farm types except specialist dairying which is noticeably lower at only 13% and specialist sheep farming which is higher at 47%. This explains the pattern in Figure 4.6.1, where uptake of GLAS is lowest in dairying areas such as the south.
Table 4.6.2 Percentage of land managed by farms in GLAS, summarised by land use and by farm type.

<table>
<thead>
<tr>
<th></th>
<th>All Agricultural Land</th>
<th>Arable</th>
<th>Grass</th>
<th>Rough</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Crops</td>
<td>23</td>
<td>27</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Mixed Crops &amp; Livestock</td>
<td>36</td>
<td>34</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>Mixed Grazing Livestock</td>
<td>37</td>
<td>28</td>
<td>36</td>
<td>50</td>
</tr>
<tr>
<td>Specialist Beef</td>
<td>39</td>
<td>35</td>
<td>39</td>
<td>46</td>
</tr>
<tr>
<td>Specialist Dairy</td>
<td>13</td>
<td>11</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Specialist Sheep</td>
<td>47</td>
<td>39</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Specialist Tillage</td>
<td>31</td>
<td>31</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32</strong></td>
<td><strong>30</strong></td>
<td><strong>32</strong></td>
<td><strong>44</strong></td>
</tr>
</tbody>
</table>

Source: RSK ADAS Ltd

The baseline losses estimated in this analysis are explicitly disaggregated by source, source area, method of mobilisation and delivery pathway allowing a transparent evaluation of the limits to pollution control under GLAS. These datasets will be used to assess the impacts on agricultural pollution from farms in GLAS. This will allow for the calculation of impact indicators demonstrating the levels of pollutant reduction that have occurred, both on land in the scheme and at whole catchment / national level when diluted with the pollution occurring from farms not in the scheme.

The pollutant emissions measured for this baseline modelling analysis are listed below along with the relevant CEQ Focus Area they aim to address:

- FA 4C: Nitrate (N)
- FA 4C: Phosphorus (P)
- FA 4B: Sediment (Z)
- FA 5D: Nitrous oxide (N2O)
- FA 5D: Methane (CH4)

Nitrate losses from the representative farm types were calculated using a combination of the field scale N-CYCLE, NITCAT and MANNER models (Lord, 1992; Scholefield et al., 1991; Chambers et al., 1999). The selected nitrate models were sensitive to cropping history, fertiliser and manure nitrogen inputs and crop off-take, stocking density, and soil hydrology, and have previously been

used to support the evaluation of the British nitrates policy and the designation of the Nitrate Vulnerable Zones (Lord and Anthony, 2000).  

Phosphorus and sediment emissions from the representative farm types were calculated using the field scale version of the PSYCHIC model (Davison et al., 2008) which is a process based, monthly time-stepping, model with explicit representation of surface and drain flow hydrological pathways, particulate and solute mobilisation, and incidental losses associated with fertiliser and manure spreading.

Nitrous oxide and methane emissions were calculated according to the methodology of the Intergovernmental Panel on Climate Change (IPCC, 2006) wherein data on livestock numbers, crop areas, and the nitrogen contents of fertiliser and manure are multiplied by agreed emission factors, using data on productivity and manure management.

Although approximately 32% of all agricultural land is managed by farms in GLAS, baseline results from the modelling exercise show that the percentage of the national pollutant load occurring from this land within GLAS varies between 33% and 23% across the 5 measures selected (Table 4.6.3). The values are lower than the proportion of land (i.e. 32%) for most pollutants because dairy farms, which typically have the highest pollutant footprints (see Table 4.6.4), are less likely to be in GLAS.

Improvement of water quality and management is measured by the percentage of the national pollutant load attributed to nitrate (N) and phosphorus (P) from land within GLAS are calculated as 27% and 28%.

Sediment (Z) is used as an indicator of the impact on soil erosion prevention and soil management. It accounts for the largest percentage (33%) of the national pollutant load attributed to land within GLAS.

23% of the national pollutant load occurring from land within GLAS is attributed to methane while 27% is attributed to nitrous oxide. Both of these will be used to assess the impact of GLAS in reducing greenhouse gas emissions.

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Table 4.6.3 Percentage of the national pollutant load from farms in GLAS

<table>
<thead>
<tr>
<th>Percentage of national load from farms in GLAS</th>
<th>N</th>
<th>P</th>
<th>Z</th>
<th>N₂O</th>
<th>CH₄</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27</td>
<td>28</td>
<td>33</td>
<td>27</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: RSK ADAS Ltd

Table 4.6.4 Baseline pollutant emission footprints (per hectare of agricultural land) for all farms by farm type

<table>
<thead>
<tr>
<th>Farm Type</th>
<th>N (kg ha⁻¹)</th>
<th>P (kg ha⁻¹)</th>
<th>Z (kg ha⁻¹)</th>
<th>N₂O (kg ha⁻¹)</th>
<th>CH₄ (kg ha⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Crops</td>
<td>27.4</td>
<td>0.50</td>
<td>288</td>
<td>6.0</td>
<td>67.6</td>
</tr>
<tr>
<td>Mixed Crops &amp; Livestock</td>
<td>10.1</td>
<td>0.25</td>
<td>153</td>
<td>2.4</td>
<td>-</td>
</tr>
<tr>
<td>Mixed Grazing Livestock</td>
<td>44.4</td>
<td>0.60</td>
<td>127</td>
<td>8.7</td>
<td>117.0</td>
</tr>
<tr>
<td>Specialist Beef</td>
<td>20.6</td>
<td>0.43</td>
<td>121</td>
<td>7.1</td>
<td>103.0</td>
</tr>
<tr>
<td>Specialist Dairy</td>
<td>50.1</td>
<td>0.96</td>
<td>139</td>
<td>14.6</td>
<td>251.9</td>
</tr>
<tr>
<td>Specialist Sheep</td>
<td>11.0</td>
<td>0.32</td>
<td>137</td>
<td>3.7</td>
<td>33.6</td>
</tr>
<tr>
<td>Specialist Tillage</td>
<td>26.7</td>
<td>0.51</td>
<td>406</td>
<td>5.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Source: RSK ADAS Ltd

4.6.3.4 Baseline Counterfactual Analysis using Teagasc National Farm Survey data

This piece of analysis uses the Teagasc National Farm Survey (NFS) to establish baseline data on the GLAS beneficiaries and non-beneficiaries. It will be used to evaluate results of these farms against their counterfactual (i.e. to calculate the changes that would have occurred without the specific programme intervention) throughout the lifetime of GLAS. It will also be used to assess the impacts and results of support under the scheme on participant farms each year.

The National Farm Survey (NFS) is conducted by Teagasc on an annual basis and is a random, nationally representative sample, of over 1,000 farms. Each farm is assigned a weighting factor so that the results of the survey are representative of the national population of farms. For this analysis, individual GLAS beneficiaries up to end 2016 were matched with the most recent NFS data available (Teagasc, 2015). Going forward the baseline position of GLAS and non-GLAS beneficiaries can be monitored to assess progress in achieving the stated objectives of reducing the nitrogen surplus and reducing greenhouse gas emissions.

359 farms within Teagasc’s NFS sample were matched as having been approved under GLAS which equates to over 37,000 farms when the weighting factors are assigned and represents 44% of the total population of farms within the NFS. The number of farms matched is also broken down by farm type in Tables 4.6.5 and 4.6.6 below.

Table 4.6.5 NFS sample matched with GLAS beneficiaries (unweighted)

<table>
<thead>
<tr>
<th>TNFS sample 2015</th>
<th>Dairy</th>
<th>Cattle</th>
<th>Sheep</th>
<th>Tillage</th>
<th>Mixed</th>
<th>Total</th>
</tr>
</thead>
</table>

72
Livestock Non-GLAS farms

GLAS farms

Total

<table>
<thead>
<tr>
<th></th>
<th>Dairy</th>
<th>Cattle</th>
<th>Sheep</th>
<th>Tillage</th>
<th>Mixed Livestock</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-GLAS farms</td>
<td>12,614</td>
<td>24,654</td>
<td>4,436</td>
<td>2,782</td>
<td>2,719</td>
<td>47,205</td>
</tr>
<tr>
<td>GLAS farms</td>
<td>3,072</td>
<td>20,964</td>
<td>8,321</td>
<td>2,324</td>
<td>2,419</td>
<td>37,101</td>
</tr>
<tr>
<td>Total</td>
<td>15,686</td>
<td>45,618</td>
<td>12,757</td>
<td>5,106</td>
<td>5,138</td>
<td>84,306</td>
</tr>
</tbody>
</table>

Source: Teagasc NFS

Table 4.6.6 NFS sample matched with GLAS beneficiaries (weighted)

The indicator values for GLAS and non-GLAS beneficiaries will be monitored every year using the NFS data and the “net” effect of the RDP invention will be quantified. The results will be expressed in “net” terms to include any indirect effects (deadweight loss, leverage, substitution, etc.) and to exclude any effects that cannot be attributed to the RDP intervention.

i. Nutrient Management

The Nitrogen balance per hectare farmed is calculated using a nutrient accounting approach based where nitrogen exports from the farm are subtracted from nitrogen imports to the farm. Nitrogen exports comprise of the Nitrogen component of milk, crops, wool and livestock sold (including livestock for slaughter) from the farm. Nitrogen imports are composed of fertilisers applied, feeds purchased and livestock brought onto the farm.

The Nitrogen balance is used as an indicator of the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies. It also takes account of management practices most directly under the farmers control and is used to assess agronomic efficiency as well as the environmental sustainability of a farm.

Figure 4.6.2 shows that GLAS beneficiaries had a lower average nitrogen surplus in kilograms per hectare than farms outside of the scheme which is a similar finding to that of the *Modelling on Baseline Pollutant Losses from GLAS* and is due to the lower number of dairy farms within GLAS that tend to be more intensive and have higher pollutant footprints than other farm types.
ii. Emissions

Greenhouse Gas Emissions (GHG) emissions from agriculture are calculated using the Intergovernmental Panel on Climate Change (IPCC) coefficients and conventions. This approach estimates emissions associated with agricultural production activity within the farm gate. Agricultural emissions categories include methane (CH4) emissions from enteric fermentation by ruminant livestock, methane and nitrous oxide (N2O) emissions from the production and storage of livestock manures; and nitrous oxide emissions resulting from the application of manures and synthetic fertilisers to agricultural soils. Figure 4.6.3 shows that average Greenhouse Gas Emissions (GHG) emissions per hectare in 2015 were lower for farms participating in GLAS compared to those outside the scheme.

Figure 4.6.2 Average Nitrogen surplus (kg) per ha

Figure 4.6.3 Average Greenhouse Gas Emissions per ha (kg CO2 equivalents)
4.6.4 Problems encountered influencing the validity and reliability of evaluation findings

The composition of GLAS beneficiaries which is comprised of a lower proportion of Dairy farms has contributed to a lower nitrogen surplus and levels of greenhouse gas emissions for farms captured within the Teagasc NFS data. Comparing farms within the GLAS to those outside the scheme is therefore and unsuitable comparison.

4.6.5 Conclusions

Results from an attitudinal survey on 175 GLAS beneficiaries show that 80% of respondents had undertaken the farmland bird actions. Low input permanent pasture (47%) and farmland habitats (30%) were the second and third most popular actions undertaken. The key drivers of participation in GLAS were increased income/the scheme payment (68%), increased income stability (62%) and increasing the sustainability of the farm for future generations (66%).

Preliminary findings from a baseline field survey show that particularly strong sightings were evident for some bird actions i.e. the chough action as sightings were recorded on or close to 17 of 30 targeted parcels. Moreover, 29 of the 30 targeted parcels for wild bird cover had birds present with over 100 birds spotted on 4 individual parcels. Results for the some other species actions were more mixed and this is mainly due to the paucity of individual species generally in Ireland as the habitat conditions appeared to be suitable on the majority of the parcels surveyed. It is anticipated that habitat condition will improve over time from the baseline assessment period.

An evaluation report modelling pollutant emissions from agricultural land and the effect of changes in land management found that the percentage of the national pollutant load occurring from land within GLAS varies between 33% and 23% across the five measures selected. Nitrate (N) and phosphorus (P) from land within GLAS are calculated as 27% and 28% of the national pollutant load. Sediment (Z) accounts for the largest percentage (33%) of the national pollutant load attributed to land within GLAS while 23% of the national pollutant load occurring from land within GLAS is attributed to methane and 27% is attributed to nitrous oxide. The values are lower than the proportion of land (i.e. 32%) for most pollutants because dairy farms, which typically have the highest pollutant footprints, are less likely to be in GLAS.

Similar results were found from a baseline counterfactual analysis using Teagasc National Farm Survey data. This showed that GLAS beneficiaries had a lower average nitrogen surplus and lower level of greenhouse gas emissions than farms outside of the scheme.

4.6.6 Recommendations

1. Further analysis should be conducted to establish suitable control groups taking into account the farm type and other relevant characteristics for the counterfactual analysis.
4.7 The Burren Programme and an administrative support service funded under Measure 20 Technical Assistance (Measure 10, Submeasure 10.1)

Relevant Focus Areas and Common Evaluation Questions

- FA 4A To what extent have RDP interventions supported the restoration, preservation and enhancement of biodiversity including in Natura 2000 areas, areas facing natural or other specific constraints and HNV farming, and the state of European landscape?

4.7.1 Background

The Burren Programme is a locally-led agri-environmental measure focussed specifically at the conservation of the unique farming landscape of the Burren in counties Clare and Galway. It aims to promote a particular farming model that couples traditional farming practices with scientific assessment of environmental health at field level and is designed to reward those farmers who deliver the highest environmental outputs. It builds on the success and experience of similar programmes for the Burren piloted under the Burren LIFE Project (2005-2010) and the Burren Farming for Conservation Programme (2010-2015).

The Programme is delivered by means of two types of interventions which participants will undertake in line with a five year plan. Intervention 1 (I-1) is a performance/results-based intervention and Intervention 2 (I-2) is a complementary capital-investment based intervention.

The primary objectives of the Burren Programme are:

- To ensure the sustainable agricultural management of high nature value farmland in the Burren;
- To contribute to the positive management of the Burren landscape and the cultural heritage of the Burren;
- To contribute to improvements in water quality and water usage efficiency in the Burren.

The Burren Programme is overseen by a Steering Group composed of representatives from the main Burren stakeholders and is managed on the ground by High Nature Value Services Ltd, a specialist locally-based intermediary layer appointed through a competitive tender process in March 2016. They are known as the Burren Programme Team and will:

- provide training and advice to the Burren Farm Advisor;
- approve farm plans;
- review on an ongoing basis the work of the Advisor;
- conduct training workshops for participants; and
- manage, monitor and promote the Programme.

A team of 10 trained and approved Burren Farm Advisors liaise directly with the BP farmers and the BP team in the development of BP farm plans. An additional 5 Burren Farm Advisors were recruited and trained in 2016, and all advisors will receive refresher training on an annual basis.

All participating farmers must engage the services of an approved Burren Farm Advisor to prepare and submit a 5-year farm plan setting out the details of their participation in the Programme and an
overview of the planned interventions. The farm plan will be a short document containing all the required information using a colour-coded, map and aerial image-based system and will include information such as:

- An overview of the farm broken down into management units (fields).
- A table listing field sizes (hectares), BP eligible areas and additional information.
- A list of Year 1 Intervention 1 (I-1) scores for all eligible fields as well as an average I-1 score for the farm and guidance for maintaining or improving this score over the 5-year term of the plan.
- A short summary of proposed priority works to be undertaken under Intervention 2 (I2) over the lifetime of the plan and the estimated budget available for doing this work.
- A declaration by the farmer and his/her advisor that the information contained in the plan is correct and that he/she will abide by the T&Cs for the programme.

Table 4.7.1 The Burren Programme Indicator data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2016</th>
<th>2023 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1 - Total Public Expenditure</td>
<td>€228,379.84</td>
<td>€12,855,000</td>
</tr>
<tr>
<td>O5 - Total Area</td>
<td>3,523.86 ha</td>
<td>1,254,809 ha*</td>
</tr>
<tr>
<td>O6 - Physical Area</td>
<td>66.69 ha</td>
<td>-</td>
</tr>
<tr>
<td>O7 - No of Contracts supported</td>
<td>58</td>
<td>450</td>
</tr>
<tr>
<td>Average I-1 score</td>
<td>7.45</td>
<td>-</td>
</tr>
</tbody>
</table>

*includes all M10 schemes under P4

Source: DAFM

The Burren Programme is opened for applications in regular tranches with over 300 Burren farmers recruited in two tranches to date. Tranche 1 opened in late 2015 and 194 farmers accepted a place in the Programme, receiving training and information during the year. An additional 124 farmers were recruited under the second tranche in late 2016, and received induction training. A third and final tranche will open in 2017. 58 farmers with over 3,500 ha were paid over €220,000 under the Burren Programme in 2016 and payments continue to issue in 2017.

A total of four classroom training sessions and four site-based sessions were held in early October 2016 for Tranche 1 farmers. The Classroom sessions were organised in 4 convenient locations across the Burren: Tubber, Kilfenora, Ballyvaughan and Carron. For the convenience of farmers who were unavailable during weekdays, a combined classroom-field trip session was held on a Saturday. The field trips took place on one farm in Carron, in the central Burren. This consisted of a two-hour walk across a farm, focussing on field scores, scrub control, wall repair, water provision and access provision. Attendance and engagement at all sessions was excellent: all participating farmers either attended in person or in a small number of cases were represented by a family member.
Three introductory Classroom-based training sessions were held for Tranche 2 farmers between the 5th and 7th of December 2016. The sessions included an introduction to the Burren, background and overview of the BP, details on types of I-2 work to consider and also management recommendations to optimise I-1 scores and payments. 120 farmers participated in these sessions out of 123 invited and again the engagement was very positive.

Only results from I-1 Score Sheets were reported in 2016 as delays in the development of a Mapping and planning system meant that 5-year plans and the I2 Annual Work Plans could not be generated. For Intervention 1 of the Burren Programme, each eligible field is scored from 1-10 on the basis of a range of criteria relating to its environmental health, with higher scores attracting higher payment. The I-1 score sheet includes the following:

- A table listing all Intervention 1 eligible fields, their areas (digitised and assessable), management recommendations, the Intervention 1 score for the present and previous year and the payment accruing to that field.
- A declaration by the farmer and his/her advisor that the information contained in the Intervention 1 sheet is accurate and the total payment due is correct.
- Map and aerial images of the eligible fields.

It is the best measure of the programmes contribution to achieving its objectives under focus areas 4A, 4B and 4C. No payments will be made for scores in the range 1-4. A field score of 5 will be acceptable for payment in years 1 and 2 of the participant’s plan only, and no payment will be made in the 3rd year onwards for a field score of 5 as insufficient improvement will have been shown. The Burren Farm Advisor carries out an assessment on each field to determine what is needed to get it into the best condition for it to function as a species-rich limestone grassland/heath and to maintain or improve ecological integrity of the grazed habitats present. The results of the assessment are used to calculate a final health rating for the field, with higher scores attracting higher payment. The average I-1 score on contracts paid in 2016 was 7.45.

### 4.7.2 Methods Applied

1. A comprehensive report\(^{20}\) compiled by the Burren Programme Team in March 2017 on the progress of the 194 Tranche 1 farmers to date. In particular, the data generated from the I-1 scoring of 1,200 fields on 194 farms provides an important baseline against which the impact of the BP can ultimately be judged. The I-1 scoring data also offers a very interesting overview and insight into the ‘environmental health’ of farms in the Burren.

### 4.7.3 Findings

As outlined previously there are three farm plan ‘structures’ within the Burren Programme are the 5 Year Farm Plan, the Intervention 1 (I-1) Score Sheet and the annual Intervention 2 (I-2) Work Programme. Due to delays in the development of a Mapping and Planning System for the Programme, only I-1 Score Sheets could be developed in 2016. All 194 Tranche 1 farmers submitted

\(^{20}\) The Burren Programme Report No. 1 1st April 2016 – 31st March 2017 (Burren Programme Team 2017)
I1 Score Sheets in 2016 and on the basis of these scores will receive payment in the region of €620,263, an average of €3,197 per farmer and €73.84 per assessable ha.

The total area covered by Tranche 1 farmers is 17,284.53ha (an average of 89.1ha per farm) of SAC and additional Annex 1 habitat. Of this, 10,065 (58.2%) has been claimed for payment under the Basic Payment Scheme.

The average I-1 score across the entire Burren Programme area assessed in 2016 was 7.21. An interesting difference was noted between the Average I-1 of 7.34 for the cohort of farms which had been a part of the Burren Farming for Conservation Programme (BFCP), as compared with an average I-1 score of 6.58 for the ‘new’ entrants to the Burren Programme. The difference highlights the improvement in condition of the BFCP cohort following the past six years of investment through the BFCP. For the subset of BFCP farmers (149 of them) it is notable that the I-1 score in 2016 (7.34) was slightly lower than 2015 (7.37), the first year since the inception of the Burren Programme that such a decline occurred. This was most likely caused by a poor winter and by difficulties in undertaking capital works.

The range of 2016 I-1 scores is shown in Figure 4.7.1 below and this indicates that 7 and 8 are the most common scores, accounting for 51% of the total I-1 area. Of the total I-1 financial allocation, 89.6% was allocated for winterage fields, 6.1% for lowland grassland fields (these represented 3.5% of total I-1 area but are paid at a higher rate) and 4.3% for commonages.

**Figure 4.7.1 Intervention 1 Assessable area (of a total area of 8,400ha) per I-1 Score**

Breaking down the range of scores by the number of farms per I-1 score band (Figure 4.7.2) shows that most farms have a baseline I-1 score of between 6 and 9. Sixteen farms have a baseline I-1 of below 5 while 6 have a baseline above 9. Only one farm has a (perfect) baseline score of 10.
The report also compares Burren Programme I-1 data from 2016 with BFCP Measure 1 (M1)\textsuperscript{21} data from 2010-2015, for the subset of farmers (n = 149) for whom such data is available. Figure 4.7.3 plots the overall I-1/M1 score using the overall area per score, averaged across the whole area.

The gradual increase in M1 scores between 2010 and 2015 was not continued in 2016 as the overall I-1 score declined somewhat from 7.37 (2015) to 7.34 (2016). The reason for this small decline is, most likely, the combination of a very wet winter in 2015/16 as well as an interruption in the BFCP/BP programme - in particular difficulty with introducing the capital works programme because of issues with mapping and statutory permissions which would have a direct, negative impact on scores.

This finding, though quite preliminary, emphasises the significance of the hybrid nature of the Burren Programme. An exclusively results-based payments approach is not sufficient to address the challenges of the Burren as the prohibitive costs (and complications) of carrying out the capital works necessary to enable better site management mean that, in the absence of a capital fund for such actions, these necessary actions would not be carried out and most likely site condition would not be sustained.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure4.7.2}
\caption{Number of farms (of a total of 194) broken down per baseline I-1 Score}
\end{figure}

\textsuperscript{21} The terms I-1 and M1 (Measure 1 in BFCP) score describe the same thing, I-1 being the updated terminology in the new programme.
4.7.4 Conclusions

Due to the delay in developing a mapping and planning system, capital works were not carried out which in turn led to slightly lower I-1 scores when comparing the Burren Programme to the Burren Farming for Conservation Programme (BFCP).

However, a solid baseline dataset of I-1 baseline data was established on most Tranche 1 farms in 2016 and €228,379.84 in payments were issued to farmers. Five new advisors were recruited and trained, while a second tranche of farmers was also recruited into the programme and have received induction training.
4.8 The Organic Farming Scheme (Measure 11, Submeasures 11.1 & 11.2)

Relevant Focus Areas and Common Evaluation Questions

- **FA 4A** To what extent have RDP interventions supported the restoration, preservation and enhancement of biodiversity including in Natura 2000 areas, areas facing natural or other specific constraints and HNV farming, and the state of European landscape?

- **FA 4B** To what extent have RDP interventions supported the improvement of water management, including fertilizer and pesticide management?

- **FA 4C** To what extent have RDP interventions supported the prevention of soil erosion and improvement of soil management?

4.8.1 Background

Organic farming is an overall system of farm management and food production that combines best environmental practice, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and products.

The overall objective of the Organic Farming Scheme (OFS) is to deliver enhanced environmental and animal welfare benefits and to encourage producers to respond to the market demand for organically produced food. It aims to encourage farmers to convert from conventional farming methods and to apply organic farming methods, as well as maintain these methods after the initial period of conversion which is a maximum period of two years. Participants in the previous Organic Farming Scheme introduced under the 2007-2013 Programme whose contracts expire in 2016, 2017 and 2018 are also offered the opportunity to extend any existing contracts by up to four years.

The general structure and implementation/administration of the 2007-2013 Organic Farming Scheme is be continued. This consists of an annual area-based payment over a maximum contract period of 5 years and 11 months, but with increased payment per hectare and a reduced differential between the conversion and maintenance rates, along with some targeted incentives aimed at areas that are in deficit.

All first time Organic Farming Scheme applicants must have completed an approved training course. The Approved Training Course shall include the National Framework of Qualifications Level 5 Introduction to Organic Farming Course. This course does not form part of the Organic Farming Scheme, nor is it funded via the RDP.
### Table 4.8.1 OFS Mandatory Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2023 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1 - Total Public Expenditure</td>
<td>€1,844,023</td>
<td>€3,999,971.3</td>
<td>€56,000,000</td>
</tr>
<tr>
<td>O4 - No. of holdings supported</td>
<td>548</td>
<td>1,264</td>
<td>-</td>
</tr>
<tr>
<td>O5 - Total area (ha) supported broken down by conversion</td>
<td>14,000 ha</td>
<td>24,000 ha</td>
<td>16,000 ha</td>
</tr>
<tr>
<td>O5 - Total area (ha) supported broken down by maintenance</td>
<td>26,000 ha</td>
<td>26,000 ha</td>
<td>46,880 ha</td>
</tr>
</tbody>
</table>

Source: DAFM

### Table 4.8.2 OFS Additional Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2015-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area under Red Clover</td>
<td>278 ha</td>
</tr>
<tr>
<td>Area under organic tillage farming</td>
<td>1,524 ha</td>
</tr>
<tr>
<td>Area under horticulture (including fruit)</td>
<td>66 ha</td>
</tr>
</tbody>
</table>

Source: DAFM

Under the 2007 – 2013 RDP, the Organic Farming Scheme (old scheme) did not meet its targets to encourage farmers to convert to organic agriculture with numbers joining the scheme falling from 2010 onwards. This highlighted the necessity for a more incentivised and targeted scheme in the 2014 – 2020 RDP in order to help meet the demand that exists for organically produced food. The standard rate of payment under the 2014-2020 Organic Farming Scheme (new scheme) is €220/ha for conversion with a maintenance rate of €170/ha, with higher rates of €300 and €200 applying for horticulture (including fruit) operations, and €260 and €170 for tillage operations. In addition, a top-up of €30/ha for red-clover is included.

The first tranche of the Organic Farming Scheme opened in April 2015 and attracted a record 942 applications while the second tranche of the scheme opened December 2015 and attracted a further 322 applicants. There are currently 548 farmers from the 2007-13 OFS under contract and receiving support under Measure 10 of Ireland’s RDP. This brings the total number of organic farmers between the ‘old’ and ‘new’ schemes to just over 1,800. This is a 38% increase on organic producers in 2012.

As the contract period of the old scheme come to a close, a significant proportion of farmers are choosing to remain within the system. In 2016 for instance, almost three quarters of farmers that finished in the old scheme applied to extend their organic contract under the new OFS.

The Organic Farming Scheme has now met all targets for the RDP period in terms of intake and area. The targets of 16,000 ha in conversion and 46,880 ha in maintenance were based on participants in both the old and new Organic Farming Schemes. 2016 data shows that the target for conversion has been exceeded by 50% and the target for maintenance has been exceeded by 2.4%.

Figure 4.8.1 below shows the share of organic area in total utilized agricultural area (UAA) at regional level in 2015. The extent of organic farming in Ireland increased significantly since 2010 (0.6% of UAA) to 1.7% of total UAA, however it is still very low compared to other European Member States.
4.8.2 Methods applied

1. An analysis of common and additional indicator data on the number of holdings and type of area supported under the Organic Farming Scheme was conducted. External research from a variety of sources is used to assess the environmental impact the OFS.

4.8.3 Findings

4.8.3.1 Analysis of farms within the Organic Farming Scheme

Figure 4.8.2 shows the geographical spread of organic farms in Ireland in 2012 and 2017. The West and South West regions have a higher share of organic farms compared to the rest of the country. Growth in the number of producers receiving support under the OFS occurred in every county apart from Wexford and Waterford over the 2012-2017 period and the largest percentage growth in organic producers was seen in Carlow (113%) and in the Border counties of Donegal (88%) and Cavan (83%).

70% (1,300) of the farms within the OFS are in the cattle sector which will allow Ireland to meet any further increase in demand for organic beef in both domestic markets as well as increasing exports to meet demand in the foreign markets. DAFM figures show that the number of cattle farms has increased by 40% from 2012 figures and the number of cattle in the OFS has increased by 43% from 2012 to 59,000. Over 9,000 cattle were slaughtered and supplied to the organic market in 2016 compared to 7,000 in 2012.
Figure 4.8.2 Total Organic Producers in Ireland 2012 v 2017

Figure 4.8.3 shows a breakdown of the percentage of animals in the cattle sector by type. It is evident that suckler farmers are more likely to be organic and there 18,500 suckler cows within the OFS which is an increase of 36% from 2012. There are only 35 (1.9%) dairy producers under the OFS due mainly to the lack of organic milk processors and a buoyant conventional sector.

Figure 4.8.3 Share (%) of Cattle by Age
4.8.3.2 Relevant External Research

However Ireland had the second fastest growing organic market globally in 2016. Figures from Kantar Worldpanel\textsuperscript{22} show that the organic sector accounts for a total value of €142m of grocery sales in Ireland which is an increase of 32.7% from 2012 (€107m).

Figure 4.8.4 takes a look at the top ten most popular categories of Organic food in Ireland for 2016. Growth in retail sales is evident across all organic product categories with vegetables, fruit and yoghurts the largest categories. Although smaller in value terms, strong growth can be seen in the sales of organic beef in 2016.

Figure 4.8.4 Top Ten Most Popular Categories of Organic food in Ireland, 2016

<table>
<thead>
<tr>
<th>Category</th>
<th>Value Sales € M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable</td>
<td>28.6</td>
</tr>
<tr>
<td>Yoghurt</td>
<td>27.5</td>
</tr>
<tr>
<td>Fruit</td>
<td>14.9</td>
</tr>
<tr>
<td>Fresh Beef</td>
<td>13.0</td>
</tr>
<tr>
<td>Breakfast Cereals</td>
<td>14.9</td>
</tr>
<tr>
<td>Hens Eggs</td>
<td>8.3</td>
</tr>
<tr>
<td>Total Milk</td>
<td>7.6</td>
</tr>
<tr>
<td>Wet/Smoked Fish</td>
<td>4.6</td>
</tr>
<tr>
<td>Cooking Oils</td>
<td>4.3</td>
</tr>
<tr>
<td>Fresh Poultry</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Bord Bia research indicates that the majority of organic fruit and vegetable produce is imported and in order to meet the domestic demand for this increased support is provided to horticulture (including fruit) operations in the OFS. This currently represents 0.1% of total land under the OFS. A similar case exists in the tillage sector and initial figures show that area under organic tillage farming currently amounts to 1,524ha, 2.1% of total land under the OFS. Under the new OFS, higher rates are payable for horticultural operations (including fruit) and for tillage operations, which will encourage a greater proportion of organic land in these areas.

In the European Union, latest figures show that the market for organic food is worth €24 billion\textsuperscript{23} and has doubled in size over the last 10 years. The largest markets exist in Germany (€7.6 billion), France (€4.8 billion), the UK (€2.3 billion) and Italy (€2.1 billion). This growth represents an opportunity for Irish farmers to supply more organic food, especially organic beef. Bord Bia research

\textsuperscript{22} https://www.kantarworldpanel.com/grocery-market-share/ireland

shows that Ireland is self-sufficient in the production of organic beef for the domestic market but there is scope for a large increase in exports to meet demand in key EU markets.

Research by Clavin (2008)\textsuperscript{24} indicated that organic farming delivers enhanced environmental benefits. It concluded that there are three significant areas where organic farming was found to deliver enhanced environmental benefits due to the following:

- **Significant difference in pesticide use between conventional and organic farming:** In terms of environmental impact, pesticides can impact on surface and ground water and on air and soil contamination. Pesticide use in organic farming is very restricted, while synthetic pesticides are completely banned;

- **Soil conservation:** Soil care is expressed in higher levels of soil organic matter, the active promotion of soil organic matter, the active promotion of soil biological activity, more balanced nutrient cycles and in many cases enhanced soil structure; and

- **Biodiversity:** Enhanced biodiversity deemed to be delivered through enhanced richness of flora and fauna.

The low production of organic cereals and pulses is a major impediment to the development of the organic meat and dairy sectors as organic cattle and sheep must be fed exclusively on organic diets. Red clover grown on its own or, more usually, with a companion grass can provide a high protein feed source while also delivering for the environment as it converts atmospheric Nitrogen into a plant usable form. It is mainly used for silage production and although it is often grazed by cattle or sheep, continuous grazing reduces its yield and lifespan. The feeding value of red clover silage is higher than grass silage resulting in greater animal intakes and higher levels of animal performance in terms of milk and protein yields, and liveweight gain. Results from Teagasc Research\textsuperscript{25} found that the mean liveweight gain in beef cattle fed on red clover silage was 1.04 kg/day compared to 0.59 kg/day for those fed grass silage. A top-up payment of €30/ha is provided to incentivise the growing of red clover under the new OFS and to date 278 ha (0.4\%) of land within the OFS is under red clover.

As the environmental benefits and impacts of organic farming are evident the main challenge in the Irish context is attracting and converting farmers to organics. Laepple and Donnellan 2008\textsuperscript{26} surveyed 181 conventional dry stock farmers to gather the opinions and perceived problems of farmers on converting to organic farming. It found that farmers did not have strong opinions about organic farming however the results also suggested that farmers felt that they did not have a good level of knowledge about organic farming. Therefore an increase in information mainly focused on promoting organic farming as an alternative to conventional farming could have a positive impact on the tendency for conversion. In addition to increasing the support rates in the new OFS, Teagasc in

\textsuperscript{24} “Organic Farming versus Conventional Farming” (Clavin, 2008)

\textsuperscript{25} “Red clover – Agronomy and Management” (Conaghan 2016)

\textsuperscript{26} “Farmer attitudes towards converting to organic farming” (Laepple and Donnellan 2008)
conjunction with DAFM have held 13 Organic Demonstration Farm Walks in 2015 and 2016 with a further 7 planned for 2017. These walks attracted an average of 105 people and offer both organic and conventional farmers the opportunity to learn first-hand about the practicalities of organic farming.

4.8.4 Problems encountered influencing the validity and reliability of evaluation findings

1. Limited data available on environmental indicators.

4.8.5 Conclusions

A record number of applications were received under the Organic Farming Scheme (OFS) bringing the total number of organic farmers to just over 1,800. This is a 38% increase on organic producers since 2012.

The Organic Farming Scheme has now met all targets for the RDP period in terms of intake and area. The targets of 16,000 ha in conversion and 46,880 ha in maintenance were based on participants in both the old and new Organic Farming Schemes. The target for conversion has been exceeded by 50% and the target for maintenance has been exceeded by 2.4%.

4.8.6 Recommendations

1. Data should be collected on environmental indicators in order to assess the impact of support under the Organic Farming Scheme and to fully address the associated Common Evaluation Questions. This can be done by matching OFS beneficiaries to Teagasc National Farm Survey data to monitor the progress of the nitrogen balance and greenhouse gas emissions on farms over the lifetime of the scheme.
4.9 Areas of Natural Constraints with specific support for offshore island farming (Measure 13 Submeasures 13.2 & 13.3)

Relevant Focus Areas and Common Evaluation Questions

- FA 4A To what extent have RDP interventions supported the restoration, preservation and enhancement of biodiversity including in Natura 2000 areas, areas facing natural or other specific constraints and HNV farming, and the state of European landscape?

4.9.1 Background

This scheme is based on the Less Favoured Areas Scheme and the Disadvantaged Areas Scheme that were delivered under previous RDPs. Its objective is to compensate farmers for income foregone and additional costs linked to the disadvantage of the area concerned. Specifically it will:

- Ensure continued agricultural land use, thereby contributing to the maintenance of a viable rural society
- Maintain the countryside and
- Maintain and promote sustainable farming systems, which in particular take account of environmental protection requirements.

A separate category of support is made available to compensate island farmers in recognition of the specific constraints faced in these areas. The maintenance of farming on Ireland’s offshore islands, including the maintenance of traditional farming methods, is vital in terms of the delivery of environmental benefits via the avoidance of land abandonment and the preservation of habitats. Support under these two submeasures and categories are delivered nationally via a single Areas of Natural Constraint Scheme (ANC).

There are a number of eligibility requirements and ANC beneficiaries must:

- Comply with the description of ‘active farmer’ in Article 9 of Regulation (EU) No 1307/2013;
- Occupy and farm at own risk a minimum of three hectares of forage land, situated in a recognised ANC area.
- Undertake to actively farm and manage the land situated in an ANC area and applied on in the given year of application;
- Comply with Cross Compliance requirements under Article 92 of Regulation (EU) No 1306/2013.
- Have a holding that meets the minimum stocking levels (0.15 livestock units per hectare or a lower level where it is justified on environmental grounds).

By 2018, these Less Favoured/Disadvantaged Areas (with the exception of the Islands) must, be replaced by newly designated Areas of Natural Constraint. A scientific process is currently underway to delineate these areas in accordance with the required biophysical criteria. This process will feed into the identification of eligible areas for the 2018 scheme.
### Table 4.9.1 Areas of Natural Constraints Scheme Payment

<table>
<thead>
<tr>
<th>Area Designation</th>
<th>Payment Rates</th>
<th>Payable Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain Type Land</td>
<td>€109.71</td>
<td>First 10 hectares or part thereof</td>
</tr>
<tr>
<td></td>
<td>€95.99</td>
<td>Remaining hectares up to maximum of 34 hectares</td>
</tr>
<tr>
<td>More Severely Handicapped Lowland</td>
<td>€95.99</td>
<td>30 hectares or part thereof subject to an overall maximum of 30 hectares</td>
</tr>
<tr>
<td>Less Severely Handicapped Lowland</td>
<td>€82.27</td>
<td>30 hectares or part thereof subject to an overall maximum of 30 hectares</td>
</tr>
</tbody>
</table>

Source: DAFM

### Table 4.9.2 Rates payable in respect of each forage hectare of Specific Constraints

<table>
<thead>
<tr>
<th>Area Designation</th>
<th>Payment Rates</th>
<th>Payable Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areas of Specific Constraints (Island)</td>
<td>€250.00</td>
<td>Up to and including the first 20 hectares of Areas of Specific Constraints or part thereof</td>
</tr>
<tr>
<td></td>
<td>€170.00</td>
<td>Greater than 20 hectares or less than or equal to 34 hectares of Areas of Specific Constraints</td>
</tr>
<tr>
<td></td>
<td>€70.00</td>
<td>Greater than 34 hectares or less than or equal to 40 hectares of Areas of Specific Constraints</td>
</tr>
</tbody>
</table>

Source: DAFM

### Table 4.9.3 ANC Mandatory Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2023 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Public Expenditure by areas facing natural constraints</td>
<td>€191,354,070</td>
<td>€203,821,453</td>
<td>€1,370,000,000</td>
</tr>
<tr>
<td>Total Public Expenditure by areas affected by specific constraints</td>
<td>€1,607,669</td>
<td>€2,445,665</td>
<td></td>
</tr>
<tr>
<td>No. of holdings supported under areas facing natural constraints</td>
<td>95,852</td>
<td>90,521</td>
<td>-</td>
</tr>
<tr>
<td>No. of holdings supported under areas affected by specific constraints</td>
<td>746</td>
<td>634</td>
<td>-</td>
</tr>
<tr>
<td>Total area (ha) broken down by areas facing natural constraints</td>
<td>2,124,994 ha</td>
<td>2,084,920 ha</td>
<td>3,402,000 ha</td>
</tr>
<tr>
<td>Total area (ha) broken down by areas affected by specific constraints</td>
<td>9,414 ha</td>
<td>8,913 ha</td>
<td>15,000 ha</td>
</tr>
</tbody>
</table>

Source: DAFM
4.9.2 Methods Applied

1. An analysis of common and additional indicator data collected under the Area of Natural Constraints was conducted.

2. Data from the 2015 Teagasc National Farm survey was also used to establish a baseline position of ANC beneficiaries non-beneficiaries in 2015 over a range a number of socio-economic and environmental indictors.

The NFS indicators will be monitored over the entire programme period allowing an assessment of the impact of RDP interventions on their stated objectives under competitiveness, nutrient management and emissions. The 2015 data utilised in this analysis can be considered as a baseline position of ANC participants and non-ANC participants.

   i. Competitiveness: Gross output (€) per hectare of utilised agricultural area (UAA) and family farm income will be used to assess progress in improving competitiveness.

   ii. Nutrient management: The nitrogen balance indicator will be used to assess the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies.

   iii. Emissions: The average Green House Gas emission per hectare indicator is used to assess progress in reducing GHG emissions.

The indicator values for ANC and non ANC participants will be monitored every year using the NFS data and the “net” effect of the RDP invention will be quantified. The results will be expressed in “net” terms to include any indirect effects (deadweight loss, leverage, substitution, etc.) and to exclude any effects that cannot be attributed to the RDP intervention.

4.9.3 Findings

4.9.3.1 Analysis of Indicators

Applications for the Areas of Natural Constraint Scheme (ANC) opened in May 2015. Almost 30% of €1.37bn in planned expenditure was drawn down by over 95,000 applicants under the ANC in 2015 and 2016. Significant payments continued to be made under the Less Favoured Area and Disadvantaged Area Scheme in 2014 as Irelands RDP was not approved until May 2015 and this is analysed under the Transitional Measures Section (Section 4.14) of this report. Including these payments brings total expenditure to €607m, 44% of planned expenditure.

Over 5,000 applicants in 2015 received their full payments from the 2016 ANC Budget, as they met the necessary eligibility requirements. A similar scenario is expected in 2017 as over 99,000 applications were received under the scheme in 2016.
At present, the total area designated as disadvantaged stands at 5,155,438 hectares (some 75% of Ireland’s total land area). The total area of designated Disadvantaged Areas in Ireland is broken down as follows:

- Some 4.075 million hectares of More Severely Handicapped Areas (inc Mountain Type Grazings);
- Some 1.053 million hectares of Less Severely Handicapped Areas (inc Mountain Type Grazings); and
- Some 0.027 million hectares of Coastal Areas with Specific Handicaps.

The map in Figure 4.9.1 below shows the current designation of disadvantaged areas under the ANC.

Figure 4.9.1 Map of Disadvantaged Areas Ireland

Source: DAFM
4.9.3.2 NFS Baseline Analysis on the Impact of the ANC on Beneficiaries

Data from the 2015 Teagasc National Farm survey was used to establish a baseline position of ANC beneficiaries and non-beneficiaries in 2015 over a range a number of socio-economic and environmental indicators. This will form a baseline that will be used to monitoring the performance of the ANC in achieving the objectives of supporting the restoration and preservation of areas facing natural or other specific constraints over the lifetime of the RDP. Data on gross output and family farm income from the NFS is used to measure the financial hardship faced by ANC beneficiaries while data on the nitrogen balance and greenhouse gas emissions is used to assess the environmental impact of farms that have been paid under the ANC in 2015.

Following the matching exercise, 637 farms within the Teagasc NFS were paid under the ANC which equates to over 63,000 farms when the weighting factors are assigned which represents approximately 75% of the total farms surveyed. Figure 4.9.2 shows that the majority of farms paid under the ANC in 2015 are in the cattle and sheep sectors while less than 1% of payments were attributed to the tillage sector. A lower portion of farms receiving support under the ANC are in the dairy sector due to the low cost, high quality grass grazing system used on these farm systems which tends to lead to higher profitability.

Figure 4.9.2 Farm Type (%) of ANC Beneficiaries and Non-Beneficiaries

![Figure 4.9.2 Farm Type (%) of ANC Beneficiaries and Non-Beneficiaries](image)

Source: Teagasc NFS

i. Competitiveness

*Family Farm Income*

Family Farm Income (FFI) is calculated by taking total net expenses from the gross output of the farm. It represents the return on all labour, management and capital investment. Factors of production owned by the farmer (e.g. family labour and land) are not included as costs of production.

While income support for farmers is not a stated objective of the ANC it is still important to examine income and indeed economic performance as secondary effect of the ANC as the principle that farm
incomes are lower in disadvantaged areas arising from the natural handicaps of the land is central to the rationale underpinning the scheme. Payment to compensate farmers for additional costs and thus income foregone relating to their land’s handicap for agricultural production is the main lever through which the scheme seeks to have an effect on the behaviour of beneficiaries.

Figure 4.9.3 shows that the average farm income in 2015 is lower for beneficiaries of the ANC due to the natural handicaps of the land they are managing. While there are many external factors that influence farm income such as commodity price changes, it does show that there is a significant income gap between ANC beneficiaries and non-beneficiaries.

**Figure 4.9.3 Average Family Farm Income (€)**

![Bar chart showing average family farm income (€) for 2015](chart.png)

Source: Teagasc NFS

**Gross output (€) per hectare of utilised agricultural area**

Gross output (€) per hectare of utilised agricultural area is a useful measure of the economic productivity of land. Utilised Agricultural Area (UAA) is the area under crops and pasture plus the area (unadjusted) of rough grazing. It is the total area owned, plus area rented, minus area let, minus area under remainder of farm. Figure 4.9.4 further shows the disadvantage that ANC beneficiaries have compared to those outside of these areas as the average gross output per hectare for beneficiaries of the ANC is 30% lower than the average non-beneficiary. Support under the ANC will contribute to improving the economic performance of beneficiaries as a secondary effect.
Nitrogen Balance

The Nitrogen balance per hectare farmed is calculated using a nutrient accounting approach based where nitrogen exports from the farm are subtracted from nitrogen imports to the farm. Nitrogen exports comprise of the Nitrogen component of milk, crops, wool and livestock sold (including livestock for slaughter) from the farm. Nitrogen imports are composed of fertilisers applied, feeds purchased and livestock brought onto the farm.

The Nitrogen balance is used as an indicator of the potential magnitude of nitrogen surplus which may result in nutrient losses to water bodies. It also takes account of management practices most directly under the farmers control and is used to assess agronomic efficiency as well as the environmental sustainability of a farm.

Figure 4.9.5 compares the average nitrogen balance in kilograms per hectare and shows that farms supported under the ANC had an average nitrogen surplus of 66.4kg per hectare, 29% lower than non-beneficiaries. This lower surplus helps to reduce the pressure on the environment, in terms of water quality, ammonia emissions and GHG emissions on these farms.
The average nitrogen balance in kilograms per hectare is lower for ANC beneficiaries across all farm types apart from the tillage sector (Figure 4.9.6). Irish milk production systems require large quantities of fertiliser and other inputs to produce grass and are the largest contributors to the nitrogen surplus for both beneficiaries and non-beneficiaries of the ANC.
iii. Emissions

*Greenhouse Gas Emissions*

Greenhouse Gas Emissions (GHG) emissions from agriculture are calculated using the Intergovernmental Panel on Climate Change coefficients and conventions. This approach estimates emissions associated with agricultural production activity within the farm gate. Agricultural emissions categories include methane (CH4) emissions from enteric fermentation by ruminant livestock, methane and nitrous oxide (N2O) emissions from the production and storage of livestock manures; and nitrous oxide emissions resulting from the application of manures and synthetic fertilisers to agricultural soils.

Average GHG emissions per hectare in 2015 were 18.5% lower on farms receiving support under the ANC (Figure 4.9.7). Looking at GHG emissions by farm type (Figure 4.9.8), we can see that those within the dairy, cattle and sheep sectors that receive support under the ANC have lower average GHG emissions per hectare than non-beneficiaries. Tillage (2.7 CO2-eq. per ha) and mixed livestock (4.7 CO2-eq. per ha) farms within the ANC have slightly higher average GHG emissions than non-beneficiaries. However, less than 8% of ANC beneficiaries are comprised of farms within these sectors.

*Figure 4.9.7 Average Greenhouse Gas Emissions per ha (kg CO2 equivalents)*

![Graph showing average greenhouse gas emissions per hectare for ANC and non-ANC farms](chart)

Source: Teagasc NFS
4.9.4 Conclusions

Almost 30% of the planned expenditure under Measure 13 was allocated to support farms in these areas in 2016 and payments are issuing on an on-going basis as beneficiaries meet the scheme eligibility requirements.

Those farming in designated disadvantaged areas face significant hardships deriving from factors such as remoteness, difficult topography, climatic problems and poor soil conditions. 2015 Teagasc data shows that they have also have lower farm productivity, profitability and income than farmers in other areas. It also shows the ANC beneficiaries have lower levels of GHG emissions and a lower Nitrogen surplus.
4.10 The Collaborative Farming Grant Scheme (Measure 16, Submeasure 16.3)

Relevant Focus Areas and Common Evaluation Questions

- **FA 1A** To what extent have RDP interventions supported innovation, cooperation and the development of the knowledge base in rural areas?

- **FA 1B** To what extent have RDP interventions supported the strengthening of links between agriculture, food production and forestry and research and innovation, including for the purpose of improved environmental management and performance?

- **FA 2A** To what extent have RDP interventions contributed to improving the economic performance, restructuring and modernization of supported farms in particular through increasing their market participation and agricultural diversification?

- **FA 2B** To what extent have RDP interventions supported the entry of adequately skilled farmers into the agricultural sector and in particular, generational renewal?

4.10.1 Background

Collaborative approaches to farming include inter-farm arrangements, intra-farm arrangements, share farming and contract rearing. They can assist in addressing a range of infrastructural issues identified in the RDP preparatory analysis such as poor land availability and farm size, work/life balance issues, the development of skills sets and the knowledge base, and intergenerational transfer.

This submeasure addresses a number of those issues and is specifically aimed at encouraging the formation of new farm partnerships by contributing to the legal, advisory and financial services costs incurred by farmers in the drawing up of their farm partnership agreement. Support is available for partnerships which are formed between actors not from the same family as well as those formed within families. The objective of the Collaborative Farming Grant Scheme (CFGS) is to encourage farmers to establish farm partnerships and in doing so adopt best practice. The creation of such farm partnerships, in turn, fulfils the following objectives:

- Addresses issues of scale and efficiency within primary agricultural production by encouraging the consolidation of blocks of land held and operated by farmers not within the same family;

- Employs new skills and specialisation in primary production through the required enhanced educational qualifications of the participants in the partnerships;

- Improves the age structure of Irish agriculture by supporting arrangements that have at least one partner who qualifies as a young farmer (under 40), with priority being given to partnerships who also have a partner who is over 60 years of age; and

- Brings added value to the new arrangement, with priority being given to those partnerships that bring the stronger economic potential to the new enterprise and to the economy.
A Farm Partnership is where two or more persons in the agriculture sector, who hold their own separate herd numbers or who are individually registered for tax purposes and who possess the appropriate agriculture qualification or experience, join resources and efforts in order to bring added value to their enterprises and in turn share the profits accruing. The added value to the enterprise comes in the form of enhanced economic and social benefits, as well as occupational health, well-being and safety benefits. The partnership works on the basis of a mutually agreed and binding Farm Partnership Agreement.

Table 4.10.1 CFGS Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2023 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA 2A – O1 Total Public Expenditure</td>
<td>€19,929.20</td>
<td>€83,104.21</td>
<td>€1,750,000</td>
</tr>
<tr>
<td>FA 2A – O16 No. of co-operation operations supported</td>
<td>22</td>
<td>35</td>
<td>-</td>
</tr>
<tr>
<td>FA 2B – O1 Total Public Expenditure</td>
<td>€59,787.61</td>
<td>€251,612.67</td>
<td>€3,250,000</td>
</tr>
<tr>
<td>FA 2B – O16 No. of co-operation operations supported</td>
<td>64</td>
<td>207</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: DAFM

4.10.2 Methods applied

1. A quantitative analysis using National Farm Survey (NFS) data to establish the baseline position of CFGS beneficiaries and non-beneficiaries. The relevant NFS indicators will be monitored over the entire programme period allowing an assessment of the impact of RDP interventions on their stated objectives under competitiveness and generational renewal. The 2015 data utilised in this analysis can be considered as a baseline position of beneficiaries and non-beneficiaries.

   i. Competitiveness: Gross Output per Annual Work Unit (a complimentary result indicator), gross output (€) per hectare of utilised agricultural area (UAA) and family farm income will be used to assess progress in improving competitiveness.

   ii. Generational Renewal: The age profile of farmers will be used to assess generational renewable and the extent that farms are demographically non-viable (farmer is aged over 60, and there are no members of the farm household younger than 45).

The indicator values for beneficiaries and non-beneficiaries will be monitored every year using the NFS data and the “net” effect of the RDP invention will be quantified. The results will be expressed in “net” terms to include any indirect effects (deadweight loss, leverage, substitution, etc.) and to exclude any effects that cannot be attributed to the RDP intervention.

2. External research that used microsimulation modelling to analyse the effect of a range of policy incentives including the CFGS have on different farm partnerships in the dairy and beef sectors.
4.10.3 Findings

4.10.3.1 Analysis of Indicator Data

The Collaborative Farming Grant Scheme (CFGS) is operated in six month tranches and is open to all farm partnerships that have been placed on the Department’s Register of Farm Partnerships which opened in April 2015. Three tranches opened in 2015-2016 with the first opening in July 2015, the second in January 2016 and the third opening in September 2016. Under the CFGS, all new farm partnerships are eligible to receive a contribution of up to 50% towards the legal, accounting and advisory costs involved in the setting up the partnership, up to a maximum of €2,500.

84 partnerships received over €79,000 under the CFGS in 2015 while 242 partnerships received almost €335,000 in 2016. Payments relating to the third tranche issued in January 2017. 17% of holdings within the scheme received support for investments in restructuring and modernisation under Focus Area 2A, while 83% of holdings targeted supports to Young Farmer under Focus Area 2B.

4.10.3.2 Baseline Analysis

Data on CFGS beneficiaries paid in 2015 and 2016 was matched to 2015 Teagasc NFS data in order to establish a baseline position of beneficiaries against non-beneficiaries and will be used to assess the progress in achieving the objectives of improving competitiveness/economic performance and generational renewal. It will be used to evaluate results of these farms against their counterfactual (i.e. to calculate the changes that would have occurred without the specific programme intervention) throughout the lifetime of the CGFS.

Following the matching exercise, just 13 farms within the Teagasc NFS were paid under the CFGS which equates to over 650 farms when the weighting factors are assigned. Tables 4.10.2 and 4.10.3 show that the majority of farms that have been paid under the CFGS are in the dairy sector.

<table>
<thead>
<tr>
<th>Table 4.10.2 NFS sample matched with CFGS beneficiaries (unweighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNFS sample 2015 (unweighted)</td>
</tr>
<tr>
<td>Non-Collab farms</td>
</tr>
<tr>
<td>Collab farms</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Source: Teagasc NFS

<table>
<thead>
<tr>
<th>Table 4.10.3 NFS sample matched with CFGS beneficiaries (weighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNFS sample 2015 (weighted)</td>
</tr>
<tr>
<td>Non-Collab farms</td>
</tr>
<tr>
<td>Collab farms</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Source: Teagasc NFS
i. Competitiveness

*Gross Output per Annual Work Unit*

The Change in agricultural output on supported farms per Annual Work Unit (AWU) is a complimentary result indicator which is required to be calculated when evaluating under Ireland’s RDP. Gross output for the farm is calculated as total sales, less purchases of livestock, plus the value of farm produce used in the house, plus receipts for hire work, services, fees etc. It also includes net change in inventory. All non-capital grants, subsidies and premiums are also included. Annual Work Unit is the total labour input of a farm including family and unpaid labour as well as paid labour.

The Gross Output per AWU indicator intends to capture the increase in competitiveness on farms receiving RDP support. This can be achieved either through increasing output for the same use of resources, or maintaining output levels but reducing the resources required to produce them. Labour is used as the resource unit for comparison because it is often the key variable within farming systems and is closely linked to providing adequate household income. For example reducing the farm labour requirement can free labour for off-farm employment or diversification.

Figure 4.10.1 shows that CFGS beneficiaries had a higher average gross output per AWU than non-beneficiaries in 2015. These figures suggest that CFGS beneficiaries are more productive, in terms of producing more output, than non-beneficiaries for the same level of resources. The composition of CFGS beneficiaries which comprised of larger farms mainly within the Dairy sector would also contribute to a higher Gross Output per AWU. Data from the 2015 Teagasc NFS report shows that the average gross output on all dairy farms was €180,000, 125% higher than the average farm within the survey.

**Figure 4.10.1 Average (€) Gross Output per Annual Work Unit**

![Bar Chart](source: Teagasc NFS)
**Gross output (€) per hectare of utilised agricultural area**

Gross output (€) per hectare of utilised agricultural area is a useful measure of the economic productivity of land. Utilised Agricultural Area (UAA) is the area under crops and pasture plus the area (unadjusted) of rough grazing. It is the total area owned, plus area rented, minus area let, minus area under remainder of farm.

The average gross output per hectare of UAA of farms within the CFGS was €2,652, 57% higher than non-beneficiaries of the scheme (Figure 4.10.2). Again this can be attributed the fact that the dairy sector accounts for 83% of CFGS beneficiaries accounted for within the Teagasc NFS.

**Figure 4.10.2 Average (€) Gross Output per ha of UAA**

![Bar chart showing average gross output per hectare of UAA for non-collab and collab farms.](source)

**Family Farm Income**

Family Farm Income is calculated by taking total net expenses from the gross output of the farm. It represents the return on all labour, management and capital investment on the farm. Figure 4 shows that farms paid under the CFGS have an average family farm income of €56,784. The prevalence of dairy farms is also a factor on the farm income estimate. Dairy farms have been consistently the most profitable farms and recorded an average Family Farm Income of €62,141 in 2015.
ii. Generational Renewal

*Viability*

The economic viability of a farm business is measured as a binary variable, where a farm is defined as viable if family labour is remunerated at greater than or equal to the agricultural minimum wage, and is also sufficient to provide an additional five per cent return on non-land assets employed on the farm. The economic viability of a farm partnership is essential as if the farm cannot provide a sustainable income for all involved in the partnership then the collaborative agreement is unlikely to take place. Therefore the viability of the farm is a key indicator to measure the likelihood of generational renewal. Figures 4.10.4 and 4.10.5 show that 57% of CFGS beneficiaries are economically viable compared to 37% of non-beneficiaries.
Figure 4.10.4 Economic Viability of CFGS Non-beneficiaries

Source: Teagasc NFS

Figure 4.10.5 Economic Viability of CFGS Beneficiaries

Source: Teagasc NFS
**Age Profile**

Farms are defined as having a high age profile if the farmer is aged over 60, and there are no members of the farm household younger than 45. This indicator shows whether the farm is likely to be demographically viable.

2015 baseline data shows that 93% of farms approved under CFGS have a non-high age profile compared to 79% of non-CFGS farms.

**Figure 4.10.6 Age Profile of CFGS Non-beneficiaries**

![Pie chart showing 21% high age profile and 79% non-high age profile](Source: Teagasc NFS)

**Figure 4.10.7 Age Profile of CFGS Beneficiaries**

![Pie chart showing 7% high age profile and 93% non-high age profile](Source: Teagasc NFS)
4.10.3.3 Supporting Succession and Inheritance through Farm Partnerships

Leonard et al. (2017)\(^{27}\) investigates potential Collaborative Farming Models and scenarios to support succession and inheritance in Ireland.

Hypothetical microsimulation modelling is used to analyse the effect of a range of policy incentives including the CFGS have on different farm partnerships in the dairy and beef sectors based on data collated from the DAFM Register of Farm Partnerships. Table 4.10.4 shows the range of policies and motivations affecting the succession and inheritance decision. This allows for the comparison of outcomes, resulting in the most economically beneficial succession and inheritance scenarios becoming established.

<table>
<thead>
<tr>
<th>Policies</th>
<th>Motivations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm Partnership Tax Relief</td>
<td>Age</td>
</tr>
<tr>
<td>Collaborative Farming Grant Scheme</td>
<td>Income</td>
</tr>
<tr>
<td>Stock Relief</td>
<td>Health</td>
</tr>
<tr>
<td>CAT – Agricultural relief</td>
<td>Reduced work load</td>
</tr>
<tr>
<td>CGT – Retirement relief</td>
<td>Increased leisure time</td>
</tr>
<tr>
<td>Stamp Duty – Consanguinity relief</td>
<td>Financial security</td>
</tr>
<tr>
<td>Young Farmer Top Ups</td>
<td>Education</td>
</tr>
</tbody>
</table>

Source: Leonard et al 2017

The main findings from this research indicate that farm partnerships are to some extent a suitable means by which to expedite farm succession and inheritance; however, this statement comes with some caveats. The suitability of a partnership depends on the individual farm level situation and also on what expectations the farmer/ successor has for a partnership. Based on the findings from this research, deciding to enter a partnership based solely on an economic rationale is best suited to dairy systems, while cattle rearing farms may have a propensity to focus on benefits such as the gradual transfer of control and increased leisure time afforded to partners. These wider non-economic benefits that could potentially be generated through farm partnerships, which could in turn bring a shift in mind-set about the value of earlier farm transfer, require further research and wider dissemination of information on same. This is especially important in the case of farmers’ operating systems where budgetary constraints are present. In terms of the Collaborative Farming Grant Scheme, the research shows that it provides a minor incentive as it alleviates some costs associated with the setting up of a partnership however it found that this may not be a sufficient incentive to enter a collaborative arrangement.

\(^{27}\) Leonard et al. (2017) The Potential of Farm Partnerships to Facilitate Farm Succession and Inheritance; International Journal of Agricultural Management, Volume 6 Issue 1
4.10.4 Problems encountered influencing the validity and reliability of evaluation findings

The composition of CFGS beneficiaries which comprised of larger farms mainly within the Dairy sector has contributed to a higher Gross Output per AWU and Family Farm Income values for farms captured within the Teagasc NFS data. For instance data from the 2015 Teagasc NFS report shows that the average gross output on all dairy farms was €180,000, 125% higher than the average farm within the survey. Comparing farms within the CFGS to those outside the scheme is therefore and unsuitable comparison.

4.10.5 Conclusions

The analysis of Teagasc National Farm Survey Data shows that on average, CFGS beneficiaries are more productive and profitable than non-CFGS beneficiaries. Family farm income and both measures of Gross Output are significantly higher for CFGS beneficiaries than non-CFGS beneficiaries.

Data on the age profile and viability of CFGS beneficiaries shows that the scheme is targeting farms that can support all those involved in a partnership and will therefore contribute to generational renewal on Irish farms. However research on supporting succession and inheritance through farm partnerships shows that the CFGS provides only a minor incentive as it alleviates some costs associated with the setting up of a partnership.

4.10.6 Recommendations

1. Data on the movement in profit sharing ratio and increased yields/volumes of farms within the CFGS should be collected by DAFM.

2. Future analysis of the CFGS using Teagasc NFS data should establish suitable control groups taking into account the farm type.
4.11 LEADER (Measure 19, Submeasures 19.1, 19.2, 19.3 & 19.4)

Relevant Focus Areas and Common Evaluation Questions

- FA 6B To what extent have RDP interventions supported local development in rural areas?

4.11.1 Background

The LEADER element of the RDP is administered and delivered by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA). LEADER has formed part of the policy framework for rural development in Ireland since its inception in the 1990s and has proven to be an effective tool for supporting the economic and social development of rural communities by providing the resources necessary for communities to support their own development.

It ensures that all members of rural communities have the opportunity to participate in decision making at a local level through the formation of Local Action Groups (LAGs) and the design and implementation of Local Development Strategies (LDS). Through these strategies Local Action Groups determine the needs in a local area and make decisions on what types of investment are best suited to address those needs. This “bottom up” or community-led local development approach will lead to a more integrated and coherent approach to local development that involves community and local government organisations in leadership roles, guiding a more integrated and coordinated approach to the delivery of all funding (both European and National) at a sub-regional level. Ireland’s LEADER programme encompasses 28 sub-regional areas and aims to address the following themes:

- Social inclusion through building community capacity, training, animation and Rural Youth initiatives.
- Rural Environment including the protection and sustainable use of water resources, the protection and improvement of local biodiversity and the development of renewable energy.

<table>
<thead>
<tr>
<th>Table 4.11.1 LEADER Mandatory Indicator Data</th>
<th>2015</th>
<th>2016</th>
<th>2023 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1-Total Public expenditure: support for preparation of LDS (19.1)</td>
<td>€765,683.51</td>
<td>€365,727.84</td>
<td>€700,000</td>
</tr>
<tr>
<td>O1-Total Public expenditure: support for running costs of the LDS (19.4)</td>
<td>-</td>
<td>€839,629.48</td>
<td>€44,950,000</td>
</tr>
<tr>
<td>No of LAGs selected</td>
<td>-</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: DAHRRGA
4.11.2 LEADER Co-operation

The Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs launched the first tranche of funding for LEADER Co-operation projects in December 2016. LEADER Co-operation is a specific element of the Rural Development Programme designed to encourage Local Action Groups to work together on a joint project which is of mutual interest to each participating area. Co-operation must involve a partnership of two or more LAGs from different areas – within Ireland or internationally - coming together to jointly deliver projects that benefit their respective local communities.

This launch followed on from a joint seminar hosted by the managing authorities in Ireland and Northern Ireland in November 2016 which aimed to promote cross-border co-operation between LAGs in Ireland and Northern Ireland. The seminar was facilitated by the respective Rural Networks in each region and provided participants with an opportunity to establish connections and partnerships while expanding on potential Co-operation ideas. Previous projects were also showcased over both days of the conference and joint documentation was developed by the managing authorities to ensure that applications processes are aligned.

4.11.3 Methods Applied

1. Qualitative description of the preparatory and administration activities conducted in 2015-2016.


3. A survey of LAG CEOs and Development Officers following capacity building training for Local Action Groups (LAGs).

4.11.4 Findings

4.11.4.1 Preparatory and Administration Activities

The expenditure in 2015 and 2016 under LEADER is based on preparatory and administration activities only. Projects did not commence in these years as the primary objective was the selection of LAGs to design and implement the Local Development Strategies. LAGs were selected in all of the 28 sub-regional areas in 2016 with funding agreements signed with all 28 groups.

Given that the LAG selected in the Galway sub-regional area did not cover the entire county, a separate LAG and LDS was established for the “East Galway” region in 2017 bringing the total number of LAGs to 29. It is anticipated that 65.7% of the rural population will be covered by the Local Development Strategies under the Leader Measure and that 3,100 jobs will be created in supported projects. As per Ireland’s 2014-2020 RDP, the rural population is defined as the population outside of Ireland’s five main cities and the population covered by LDS equates to the sub regional area of each selected LAG.

The 28 selected LAGs have recorded 4,501 Expressions of Interest (EOIs) to date, of which 4,195, or 94%, are currently in progress at various EOI or project stages. The remaining 306 EOIs have either been withdrawn or found to be ineligible. Table 4.11.2 below shows the breakdown of the EOIs and the indicative grant amount that will be distributed by NUTS 3 region.
Table 4.11.2 LAGs, EOIs and indicative grant amounts by NUTS 3 Region

<table>
<thead>
<tr>
<th>NUTS 3 Region</th>
<th>LAGs</th>
<th>EOIs in progress</th>
<th>Indicative grant amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Border</td>
<td>6</td>
<td>972</td>
<td>€49,013,711.36</td>
</tr>
<tr>
<td>South-East</td>
<td>5</td>
<td>746</td>
<td>€40,649,933.58</td>
</tr>
<tr>
<td>West</td>
<td>3</td>
<td>581</td>
<td>€29,585,466.31</td>
</tr>
<tr>
<td>South-West</td>
<td>4</td>
<td>847</td>
<td>€25,611,271.41</td>
</tr>
<tr>
<td>Mid-West</td>
<td>2</td>
<td>367</td>
<td>€17,924,200.56</td>
</tr>
<tr>
<td>Mid-East</td>
<td>3</td>
<td>239</td>
<td>€13,308,091.25</td>
</tr>
<tr>
<td>Midlands</td>
<td>4</td>
<td>391</td>
<td>€7,122,595.78</td>
</tr>
<tr>
<td>Dublin</td>
<td>1</td>
<td>52</td>
<td>€2,823,051.00</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>4,195</td>
<td>€186,038,321.25</td>
</tr>
</tbody>
</table>

Source: Pobal, LEADER ICT system, 2017

66% of the EOIs have been submitted under Theme 1: Rural economic development, enterprise development and job creation while 30% have been submitted under Theme 2: Social Inclusion. Table 4.11.3 shows that the average amount applied for across the three LEADER themes. There is a sharp contrast in the average amount applied for across each of the three themes with is almost €57,000 under theme 2 compared to just over €38,000 under theme 3.

Table 4.11.3 Indicative grant amounts by theme

<table>
<thead>
<tr>
<th>Theme</th>
<th>Indicative grant amount</th>
<th>Average indicative grant amount per EOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 1: Rural Economic Development, Enterprise Development And Job Creation</td>
<td>€96,165,573.48</td>
<td>60.46%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€44,193.74</td>
</tr>
<tr>
<td>Theme 2: Social Inclusion</td>
<td>€57,826,215.85</td>
<td>36.36%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€56,748.00</td>
</tr>
<tr>
<td>Theme 3: Rural Environment</td>
<td>€5,062,473.04</td>
<td>3.18%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€38,352.07</td>
</tr>
<tr>
<td>Total indicative grant amounts</td>
<td>€159,054,262.37</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Pobal, LEADER ICT system, 2017

The most popular subthemes under Theme 1 relates to rural tourism which accounts for 57% of EOIs submitted. This is followed by enterprise development at 29% while less than 1% (21) of EOIs received under theme 1 related to broadband. The vast majority, of EOIs (990) submitted under Theme 2 concerned basic services for hard to reach communities. The remaining 134 (12%) EOIs were targeted at projects for rural youth. Finally 55% of EOIs submitted under Theme 3 related to the sub-theme of local biodiversity. 26% of EOIs under Theme 3 concerned the sub-theme ‘renewable energy’ however these made up over half the total amount applied for (€2,587,803).

The EOIs that ultimately progress to approved project applications will be monitored as the Programme progresses to consider the breakdown between the aforementioned themes and sub-themes.
4.11.4.2 Monitoring and Evaluation Requirements

LAGs have a minimum of 6 months to develop the LDS and as part of their Local Development Strategy Framework, each LAG is required to develop a Monitoring & Evaluation Plan. This includes outlining the methodology for collecting quality data that measures the achievement of local objectives and reports on local projects. LAGs should also carry out a regular review of the LDS to measure progress and identify challenges.

LAGs will also be required to capture more qualitative aspects of LEADER for evaluation purposes. In their LDS Framework they must outline proposals on how to evaluate their LDS. This involves outlining the:

- Objectives of the evaluation;
- Governance for managing the evaluation;
- Specific themes that the LAG wishes to evaluate;
- Data requirements and Methodology to be employed;
- Timelines / Key Milestones; and
- Proposed approach to communicating the findings.

Each LAG must submit a short annual report to the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA) by the end of February each year. Each report must follow the Annual Report template available through the LEADER ICT System and includes:

1. An outline of the previous year’s achievements relative to the priority actions identified to include:
   - information on the organisational structure, operations and decision-making within the LAG;
   - issues or challenges encountered in implementation during the year;
   - particular successes to be highlighted;
   - progress made in contributing to LEADER’s cross cutting objectives;

2. The priority actions for the year in which the report is produced;

3. Three Project Case Studies covering three different sub-themes, to include information regarding the:
   - promoter background and description;
   - project or business description;
   - products or facilities or services delivered;
   - financial Information (previous funding or other sources of funding);
   - employment (current and potential);
   - performance indicator data;
   - compatibility with the LAG’s LDS, the LEADER themes and cross-cutting objectives; and
   - benefit to the community.
The requirements for the reports submitted in respect of 2016 were modified given that projects were not approved in 2016. The DAHRGGA will review the Annual Reports and engage with individual LAGs as appropriate. It will also summarise any patterns, trends or key issues emerging from the Annual Reports which will then contribute to an overall framework for evaluating LEADER performance generally and the performance of the LAG specifically.

In order to fully address the Common Evaluation Question in future evaluations this will all be collated along with the mandatory and additional indicators required for the Annual Implementation Reports of Ireland’s RDP. The Additional indicators that will be collected include the

- Jobs sustained as a result of RDP intervention;
- Number of new SMEs supported;
- Number of existing SMEs supported;
- Number of SMEs supported in the non-agricultural sector;
- Number of rural dwellers participating in a local development action;
- Number of rural dwellers participating in a capacity building / training action;
- Number of projects / initiatives supported by the LDS; and
- Amount of funding leveraged to support the local development action

4.11.4.3 Interactive Story Board

Ireland’s National Rural Network which, was established in January 2016 and is funded under Ireland’s RDP, will also play a key role in the evaluation of LEADER. A number of case studies have been conducted from the 2007-13 programme period and these have been developed into an interactive story board on the NRN’s website. An interactive story board will also be developed for projects in the 2014-2020 to highlight areas of best practice across all of the LEADER Themes.

Figure 4.11.1 LEADER interactive story board (RDP 2007-2013)

Source: National Rural Network website
4.11.4.4 Training of LAGS survey

The NRN also conducted a survey on capacity building training for Local Action Groups (LAGs) in order to enhance the delivery of LEADER under Ireland’s RDP. LAG CEOs and Development Officers were surveyed and findings show that training on IT (86%) and Operating Rules (84%) were the most important training categories identified. Rural Environment (97%), Social Inclusion (89%) and Economic Development/Enterprise Development/Job Creation (84%) where identified as the most important LEADER Themes that needed to be addressed under training. The most popular style of training that LAGs requested included a Workshop training style (65%) while webinars also rated highly (52%) amongst respondents. The DAHRRGA has already conducted a number of capacity and training events for LAGs, including 10 half-day training sessions on phase 1 of the IT system in and 3 separate meetings of the Operating Rules Focus Group which was used to inform the design of the programme operating rules.

4.11.5 Conclusions

As expenditure in 2015 and 2016 under LEADER is based on preparatory and administration activities only it is not possible to evaluate and fully assess the extent to which LEADER funding has supported local development in rural areas. The primary objective in these years was the selection of Local Action Groups (LAGs) to design and implement the Local Development Strategies (LDS). LAGs were selected in all of the 28 sub-regional areas in 2016 with funding agreements signed with all 28 groups. Given that the LAG selected in the Galway sub-regional area did not cover the entire county, a separate LAG and LDS was established for the “East Galway” region in 2017 bringing the total number of LAGs to 29.

The co-operation element of LEADER was also launched towards the end of the period and trans-national co-operation with LAGs in Northern Ireland is being specifically targeted and facilitated.

Selected Local Action Groups (LAGs) must develop a Monitoring & Evaluation Plan within their Local Development Strategies (LDS) and must also submit an annual report to the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA) by the end of February each year. This report must outline of the previous year’s achievements, priorities for the coming year and include three Project Case Studies covering different sub-themes. The data collected from these reports along with the relevant mandatory and additional indicators and information compiled by Ireland’s National Rural Network will ensure that a robust evaluation framework will be in place for the LEADER Programme under Irelands 2014-2020 RDP.

A survey on capacity building training of LAG CEOs and Development Officers was carried out by the NRN and findings show that training on IT (86%) and Operating Rules (84%) were the most important training categories identified.
4.12 **Technical Assistance (Measure 20)**

**Relevant Common Evaluation Question**

- To what extent has Technical Assistance contributed to achieving the objectives laid down in Art. 59(1) of Reg. 1303/2013 & Art. 51(2) of Reg. 1305/2013?

### 4.12.1 Background

A budget of €8.2m has been allocated under Technical Assistance (TA) to support the Managing Authority with any preparatory, monitoring, administrative, evaluation, audit and control measures necessary in the implementation of the RDP. Technical assistance under Ireland’s Rural Development Programme will fund:

- Any external expertise which may be required in relation to the evaluation milestones set out in the Evaluation Plan;
- the National Rural Network (NRN);
- the Communication Plan on information and publicity;
- expenses incurred in the operation of the National Monitoring Committee;
- the administrative support service which is to be set up by competitive tender in order to support the delivery of the animal health and welfare advisory service as set out in Measure 2 and the delivery of the Burren Programme as set out in Measure 10.

Rural Development Division of the DAFM is the Managing Authority (MA) under the RDP and consists of six staff members. It has the responsibility of managing and drawing down the TA allocation and ensuring the efficient and effective management and implementation of the RDP.

### 4.12.2 Methods Applied

1. An analysis of TA expenditure including the support provided for RDP Monitoring Committees and capacity building training as well as a detailed breakdown of the information and publicity actions carried out to date.
2. A description on key findings from six evaluation reports carried out on the RDP.
3. A qualitative survey of 157 beneficiaries is used to assess the level of satisfaction with the quality of communication and dissemination activities under GLAS.

### 4.12.3 Findings

#### 4.12.3.1 Analysis of expenditure under Technical Assistance

Payments of approximately €65,182.24 (excluding VAT) were made from the Technical Assistance budget in 2015. The two main expenditure items were €20,000 for setting up a database for the Animal Health and Welfare Advisory Service under Measure 2 of Ireland’s RDP and €41,000 for the preparation of reports on the RDP ex-ante assessment and Strategic Environmental Assessment.

Expenditure for Technical Assistance in 2016 amounted to €799,663.40. This includes payments, an Ex Post Evaluation of the 2007-2013 Rural Development Programme, an Ex Ante Assessment on Financial Instruments, a GLAS Baseline Evaluation Study, the training of advisors on animal health
and welfare and other ancillary costs. €305,182.78 was allocated from TA for the establishment and running of the National Rural Network in 2016 which is discussed further in Section 4.13.

4.12.3.2 RDP Monitoring Committee

The MA organises meetings of Ireland’s 2014-2020 RDP Monitoring Committee which take place annually. The first meeting of the Monitoring Committee took place in September 2015 and also incorporated any outstanding issues from the 2007-2013 RDP Monitoring Committee. This included a presentation on the 10th and final amendment to the 2007-13 RDP. Presentations were also given on the rules of procedure for 2014 – 2020 Monitoring Committee. The selection criteria and an outline on the progress of the measures under the 2014-2020 RDP were also presented.

The second meeting of the Monitoring Committee took place in September 2016. It included presentations on the selection criteria and the progress of the measures under the 2014-2020 RDP to date. This included information on the approval of the First Amendment and the progress of RDP Evaluations. Presentations were also given on the proposed Second Amendment of the RDP and on the role and functions of the NRN.

Monitoring Committee meetings are attended by a range of stakeholder groups including staff from all relevant RDP Line Divisions and those involved in implementing and operating the other European Structural Investment Funds. Farm bodies are also represented on the Monitoring Committee as well as Birdwatch Ireland, the Environmental Protection Agency, the Environmental Pillar and the Irish Local Development Network.

4.12.3.3 Capacity Building

Members of the MA have attended a number of European Network for Rural Development (ENRD) capacity building events which included workshops held by the European Evaluation Helpdesk that covered topics on the ex-post evaluation and preparing the assessment of HNV farming in 2014-2020 RDPs.

The MA also hosted a capacity building workshop on the 2017 Enhanced Annual Implementation Report in conjunction with the Evaluation Helpdesk for MAs and those within the operational units under both Ireland’s and the UK’s RDPs. The event took place at Agriculture House, Dublin in January 2017 and aimed to:

- Ensure a common understanding on the reporting requirements for the AIR submitted in 2017
- Facilitate the correct filling in of the SFC template for AIR submitted in 2017
- Discuss the specific issues in relation to the assessment of results and answering the common evaluation questions (e.g.: secondary contributions, assessment in case of low or no RDP uptake, small programmes, CLLD, NRN/TA, data issues and methods, etc.)

4.12.3.4 Evaluation Reports

116
Six evaluation reports have been carried out under the 2014-2020 RDP to date and are outlined in detail below.

EX-ANTE EVALUATION

This report presents the Ex-Ante Evaluation of Ireland’s draft Rural Development Programme (RDP) 2014-2020. The report was prepared on behalf of the Department of Agriculture, Food and the Marine (DAFM), and fulfils the Department’s obligations, as the proposed Managing Authority, to subject the new programme to an independent Ex-Ante Evaluation. The ex-ante evaluation is broadly supportive of the emerging proposals regarding the aims, focus, Priorities and financial balance of the draft 2014-2020 Rural Development Programme (RDP) in Ireland. It has emerged from a strong and considered assessment of the agricultural and rural context, and from a detailed and objective examination of needs, both general and also specifically in relation to the six areas identified as Union Priorities for rural development in the Regulation.

STRATEGIC ENVIRONMENTAL ASSESSMENT

Ireland the Rural Development Programme 2014-20 (RDP), as prepared by the Department of Agriculture, Food and the Marine (DAFM), was subject to Strategic Environmental Assessment (SEA). The SEA concluded that, when viewed in its totality, the RDP has little potential to result in any adverse environmental consequences of note. To the contrary, the RDP has the potential to deliver an overall positive contribution to Ireland’s environment and to the communities that environment supports.
**APPROPRIATE ASSESSMENT**

Under the Habitats Directive as transposed into Irish law, the potential impacts of any plan or project on Natura 2000 sites, including SACs and SPAs, are to be assessed by means of Appropriate Assessment (AA). The AA of Ireland’s Rural Development Plan (RDP) 2014-2020 objectively concluded that the RDP 2014-2020 as adopted will not significantly affect the integrity of any Natura 2000 sites, alone or in combination with other plans or policies.

**EVALUATION OF THE GLAS – LITERATURE REVIEW**

The first phase of the evaluation project – the literature review – was published in June 2016. It sought to capture and synthesise work on agri-environment measures in Ireland produced since 2010. Focused mainly on REPS and AEOS, it also examined other agri-environment measures, as well as other relevant research projects or national reports on biodiversity, climate and water quality. The review highlighted important points for the overall GLAS evaluation, in particular the need for a national scale long-term evaluation using a consistent methodology.

**EVALUATION OF THE GLAS – PRELIMINARY MODELLING REPORT**

The second phase of the GLAS evaluation consists of a modelling exercise and detailed longitudinal (five-year) study of scheme actions at national level. The modelling exercise is designed to evaluate GLAS actions on climate change and water quality while the contribution of GLAS actions to biodiversity objectives is being assessed by means of field survey of a random sample of GLAS participants repeated three times over the duration the scheme. A preliminary report on the modelling exercise was prepared by RSK ADAS Ltd in June 2017. The report is designed to describe the methodology applied in the calculation of the baseline pollutant losses and detail the assumptions and data sources used to parameterise the models in order for DAFM to review and comment on the approach.
EX POST EVALUATION OF THE RDP 2007-2013

The overall objective of the ex-post evaluation was to achieve a holistic, strategic and robust evaluation of the RDP programme in Ireland, as experienced during the period 2007-2013. The programme was implemented at a time of crisis in the Irish economy which had a very large impact on programme measures, and the nature and scale of the challenges the RDP was intended to address. A number of recommendations based on the findings of the ex-post evaluation have been formulated with the objective of informing the design of future policy to support agriculture and rural communities.

4.12.3.5 Information and Publicity

The Information and Publicity Strategy for the 2014-2020 RDP\textsuperscript{28} was submitted to the Monitoring Committee in November 2015. It identified the information and publicity actions that will ensure the specific target groups have full access to current information on the Programme. Rural Development Division of the DAFM is the Managing Authority under the RDP and has responsibility for the preparation and implementation of the strategy. This task is shared with the various implementing line divisions and with the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA). As DAHRRGA has responsibility for the measures under the LEADER element of the programme, it will have a pivotal role in ensuring implementation of the Information and Publicity Strategy in relation to this particular measure. The National Rural Network (NRN) also ensures that the RDP is publicised and has implemented a comprehensive communication plan as a part of its Action Plan which is discussed in Section 4.13. A number of information and publicity actions were carried out over the 2014-2016 period to ensure that the beneficiaries, stakeholders and the wider public were made aware of Ireland’s 2014-2020 Rural Development Programme. Some of the key actions are outlined below.

110 press releases providing information on all RDP measures were prepared and distributed to 1,147 key stakeholders and media outlets. 70 Circulars providing scheme information to GLAS Advisors and a further 10 Circulars providing information to LEADER Local Action Groups were also sent. 18 presentations on Ireland’s RDP were made to various stakeholder groups as well as to a number of visiting international delegations from Hungary, the Balkan states, Korea and China.

Information sessions and seminars provide beneficiaries and advisors with an opportunity to discuss the details of RDP measures with relevant DAFM and DAHRRGA staff. 91 information sessions and seminars were carried out in a number of locations from 2014 to 2016. 27% of these consisted of

\textsuperscript{28}\url{http://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/InformPublicStrat040116.pdf}
information and training sessions for farmers and facilitators under Measure 1: Knowledge Transfer Groups while almost 20% consisted of information session on TAMS II which included 3 training sessions that specifically focused on the TAMS II IT application system. These 3 training sessions aimed to address any issues that advisors and scheme participants had with the IT system and ensured a quicker application and approval process under TAMS II. 11 various information sessions were carried out under LEADER. These included the official launch of LEADER as well as a number of capacity building sessions and operating rules focus groups. These events attracted an average of 71 participants. Further information meetings and training seminars were carried out for GLAS and BDGP participants under Measure 10 and on the Locally-led Schemes delivered under Measure 16.

34 Demonstration Farm Walks have also been organised to allow farmers to discuss and share best practice farming methods. DAFM in conjunction with the National Parks & Wildlife Service, and Birdwatch Ireland delivered 8 farm walks in 2015 and 2016 on farms that undertook actions under GLAS to preserve Grey partridge, Twite and Corncrakes. 13 Demonstration Farm Walks also took place on farms within the Organic Farming Scheme under Measure 11 of Ireland’s RDP. These walks were delivered by DAFM and Teagasc and have contributed to encouraging a greater uptake of organic farming in Ireland.

A number of publications have been produced and in order to create awareness of RDP measures to all stakeholders. A RDP summary booklet containing a general description of each scheme as well as information on eligibility criteria and support rates was published in September 2015. This booklet was updated in 2016 to take account of the changes made following the agreement of the First Amendment of Ireland’s RDP. These booklets are available from all Department offices and on the Department’s website. They have been distributed at the National Ploughing Championships as well as any NRN events. Other publications include a factsheet on the LEADER programme which is produced and distributed by DAHRRGA and an internal information note on RDP implementation and management structures for operational divisions.

A dedicated online portal for the RDP is located on both DAFM’s and the DAHRRGA websites. Material on each measure and scheme is provided here and updated regularly as well as on various social media platforms run by both Departments. The NRN also have a separate website and social media accounts which also promote the RDP. Finally a text messaging service is used by DAFM to remind beneficiaries of important deadlines such as scheme opening and closing dates.

4.12.3.6 Survey on the Communication of the RDP
An attitudinal survey on 175 Green Low-carbon Agri-environment Scheme (GLAS) beneficiaries was conducted as part of a GLAS baseline evaluation study. The survey contains a series of questions on the communication of the scheme and the results are used to assess the level of satisfaction with the quality of communication and dissemination activities.

In terms of communication channels outside of the GLAS Advisor, the preferred source of information was sought through specialist agricultural newspapers, with more than a third of the respondents indicating this as their preferred source. This was followed by the Departments website (25%) and telephone and email helpdesk (11%).
The respondents felt that they were well informed on the Application Process (56%), Guidelines / Best practice on specific GLAS Actions (59%) and the Eligibility Requirements of the scheme (61%).

Finally respondents outlined that types of communication tools that they would most like to see DAFM expand their use of, when providing information on GLAS were information sessions (32%), newspaper/print media (34%), department helpdesk (32%) and text messaging(34%).

4.12.4 Conclusions

Rural Development Division of the DAFM is the Managing Authority (MA) under the RDP and it has the responsibility of managing and drawing down the Technical Assistance allocation. 11% of the Technical Assistance budget under Ireland’s 2014-2020 RDP has been used to conduct a number of evaluations, establish a National Rural Network, implement a range of actions under the information and publicity strategy and provide an administrative support service for number of RDP measures.

Two meetings of the 2014-2020 RDP Monitoring Committee took place in 2015 and 2016. The Committee membership encompasses a wide range of key stakeholders from the agriculture, environmental and rural sectors. The Managing Authority has participated in and hosted capacity building events with the Evaluation Helpdesk to ensure the RDP is implemented and evaluated to a high standard.

The 2014-2020 RDP has funded six separate evaluations across a range of topics to date. These included an Ex-Ante Evaluation, Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) of Ireland’s draft Rural Development Programme (RDP) 2014-2020. A number of recommendations based on the findings of the Ex Post Evaluation of Ireland’s RDP 2007-2013 have been formulated with the objective of informing the design of future policy to support agriculture and rural communities. A detailed literature review of the existing research on Irish agri-environment measures and modelling exercise and longitudinal (5-year) field-based assessment of GLAS actions have also been carried out.

110 press releases providing information on all RDP measures were prepared and distributed to 1,147 key stakeholders and media outlets. 91 information sessions and seminars were carried out in a number of locations from 2014 to 2016 while 34 Demonstration Farm Walks have also been organised to allow farmers to discuss and share best practice farming methods. A number of publications including a summary booklet of the RDP and a LEADER factsheet have been produced in order to create awareness of RDP measures and a dedicated online portal for the RDP is located on both DAFM’s and the DAHRRGA websites.

An attitudinal survey on 175 GLAS beneficiaries on the quality of communication and dissemination activities found that 34% of respondents used specialist agricultural newspapers as a source of attaining additional information on the scheme. Respondents felt that they were relatively well informed across a range of topics on GLAS and would like to see some improvements /expansion in the use of information sessions, newspaper/print media, department helpdesk and text messaging throughout the communication process.
4.13 The National Rural Network

Relevant Common Evaluation Question

- To what extent has the NRN contributed to achieving the objectives laid down in Art. 54(2) of Reg. 1305/2013?

4.13.1 Background

Irish Rural Link in partnership with the Wheel, NUI Galway and Philip Farrelly and Co. was chosen to run Ireland’s National Rural Network following a competitive tender process in January 2016. The running of the NRN is funded via Ireland’s technical assistance budget under the 2014-2020 Rural Development Programme and its objectives as outlined in Article 54(2) of Regulation 1305/2013 are to:

- increase the involvement of stakeholders in the implementation of rural development;
- improve the quality of implementation of rural development programmes;
- inform the broader public and potential beneficiaries on rural development policy and funding opportunities; and
- foster innovation in agriculture, food production, forestry and rural areas.

A comprehensive action plan was developed by the NRN in 2016 and outlined nine work packages identifying a number of governing themes. These nine work packages include: Network Management, Best Practice, EU Networking, Biodiversity and Environmental Challenges, Climate Change and the Farming Community, Viability and Competitiveness of the Farming Community, LEADER, the LIFE Programme and European Innovation Partnership for Agricultural Productivity and Sustainability.

4.13.2 Methods applied

1. A detailed analysis of indicator data which included an assessment on the impacts of the various communication tools used by the NRN and a breakdown of the types of best practice case studies developed.

2. Qualitative surveys were used by the NRN as a form of self-assessment and issued to participants following each NRN event.
4.13.3 Findings

Table 4.13.1 NRN Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O25 - Number of NRN communication tools</strong></td>
<td></td>
</tr>
<tr>
<td>Nr of events organized by NRN</td>
<td>9</td>
</tr>
<tr>
<td>Nr of Publications: leaflets, newsletters, magazines... including e-publications</td>
<td>18</td>
</tr>
<tr>
<td>Nr of other tools (website, social media...)</td>
<td>12</td>
</tr>
<tr>
<td>Nr of projects examples collected and disseminated by NRN</td>
<td>45</td>
</tr>
<tr>
<td><strong>O24 - Number of thematic and analytical exchanges set up with the support of NRN</strong></td>
<td></td>
</tr>
<tr>
<td>Thematic working groups</td>
<td>6</td>
</tr>
<tr>
<td>Consultations with stakeholders</td>
<td>0</td>
</tr>
<tr>
<td>Others (trainings, web forum...)</td>
<td>0</td>
</tr>
<tr>
<td><strong>O26 - Number of ENRD activities in which the NRN has participated</strong></td>
<td></td>
</tr>
<tr>
<td>out of which NRN had an active contribution</td>
<td>8</td>
</tr>
<tr>
<td><strong>O1 - Total public expenditure</strong></td>
<td>€305,182.78</td>
</tr>
</tbody>
</table>

Source: The National Rural Network

The NRN has been allocated a budget of €3 million with €305,182.78 (10.2%) spent in 2016 on activities across a range of RDP themes. €73,769.30 of this was allocated to support the setting up and running of the NRN.

A key component of Ireland’s NRN is the Advisory subcommittees. Meetings of 6 Advisory subcommittees took place in 2016 and these focused on a number of thematic areas including farm viability and competitiveness, ecosystem management, natural resources & climate, social inclusion poverty reduction, European Innovation Partnerships and LEADER. The key purpose of the NRN Advisory Sub-Committees is to support the effective engagement of the National Rural Network (NRN) with the Rural Development Programme (2014-2020) and they bring together key RDP stakeholders to ensure the objectives of the RDP are being implemented effectively. These advisory subcommittee meetings meet biannually and will be used to inform future Action Plans for Ireland’s NRN.
4.13.3.1 Communication

Google analytics was used to monitor the success of the website which went live in February 2016. The website attracted over 12,500 views in its first year and 71.7% of these were unique visitors. Figure 4.13.1 below shows an analysis of the NRN’s social media performance in 2016. Any content and information produced by the NRN or that is relevant to the RDP is regularly shared via these platforms.

Figure 4.13.1 NRN Social Media Audience

The NRN also published 4 quarterly newsletters and 10 monthly e-bulletins in 2016. These contain articles across multiple themes and were published on the NRN’s website. The Newsletters are also sent to 1,321 members who have registered with the NRN online or at events organised or attended by the NRN.

The NRN also issued two videos in order to increase awareness of its work and RDP themes. These included a short video introducing and outlining the role of the NRN and an animation in advance of the EIP Agri Conference highlighting some key facts and figures of the EIP measure.

4.13.3.2 Best practice case studies

A total of 45 case studies, some covering multiple themes, were conducted by the NRN in 2016. All of case studies under Priority 6 (LEADER) focused on projects in the previous RDP period and these have been developed into an interactive story board on the NRN’s website. This will also be done for projects in the 2014-2020 to highlight areas of best practice across all of the LEADER Themes in each sub regional area. 10 case studies focused on multiple themes in the 2014-2020 RDP including projects and actions within the Green Low-carbon Agri-environment Scheme, the Beef Data Genomics Programme and the Targeted Agricultural Modernisation Schemes. The NRN will continue to compile at least two examples per quarter from all thematic areas of Ireland’s RDP.
4.13.3 NRN Self-Assessment

According to the European Evaluation Helpdesk’s guidance on Evaluation of the National Rural Networks (NRNs) in the 2014-2020 period “Self-assessment is a process that is conducted by the NRN itself and consequently generates an inside view of the NRN’s activities and performance. This helps involved actors to reflect whether their activities effectively contribute to the achievement of network objectives. It can and should be interlinked with NRN evaluation in order to ensure that the collected evidence can be used as one of the possible information sources when evaluating the NRN’s efficiency, effectiveness, results and impacts.” In order to address this, the NRN has conducted a number of feedback surveys on participants at any event and conference that it has organised.

The NRN’s 1st Annual Conference took place in October 2016 and covered the theme of European Innovation Partnership for Agricultural Productivity and Sustainability. The conference aimed to provide information on the possibilities for all relevant stakeholders to foster competitive and sustainable farming practices, products and processes.

A survey was conducted following the conference to evaluate participant’s experiences of the day and to inform the NRN on future conferences. Over 200 RDP stakeholders including farmers, advisors and researchers were in attendance and 70 of these participating stakeholders completed the survey. Some of the key findings of this evaluation are outlined in the figures below. 100% of participants rated it as good (47%) or excellent (53%). Participants were motivated to attend to gain important info (57%), to meet and network with sector peers (40%) and for the great line-up of speakers/content (27%).
Figure 4.13.3 Please rate your experience of the conference

Source: Survey of NRN Conference Participants

Figure 4.13.4 What was your motivation for attending the NRN Conference?

Source: Survey of NRN Conference Participants
Participants suggested that future conferences should offer workshops (77%) and provide exhibition spaces (81%), while 77% of participants were happy with the centralised location of the conference in Athlone.

**Figure 4.13.5 For future conferences do you think the NRN should consider any of the following?**

![Bar chart showing responses to survey questions]

Source: Survey of NRN Conference Participants

The NRN also carried out a survey on the day to gather information on stakeholder’s knowledge of European Innovation Partnerships (EIPs) and their intended next steps to engage in the EIP process. 105 surveys were completed and some of the key findings are outlined below.

**Figure 4.13.6 Where Did You Hear About EIP AGRI?**

![Pie chart showing sources of information]

Source: Survey of NRN Stakeholders
The majority of respondents heard about EIP AGRI as a result of direct communication from the NRN (41%), with the next being communication from the Department of Agriculture, Food and the Marine (18%).

The outcomes and lessons learnt from these self-assessment surveys have contributed to the enhanced delivery of EIPs in Ireland. 32% of respondents are intending to submit a project proposal under the EIP measure, with a further 22% thinking of submitting a proposal with only 4% of respondents either not submitting or participating in any way.

While over half of the respondents (55%) had already identified a possible partner, 45% of respondents had not. This finding triggered the NRN to offer a ‘matching service’ for EIP Projects whereby they promote any individual that is seeking a partner via the news section of their website and also by emailing the list of stakeholder names collected at the EIP conference as well as those stakeholders known by the Department.

**Figure 4.13.7 Have you identified an EIP project partner?**

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Identified a partner</td>
<td>55%</td>
</tr>
<tr>
<td>Have not identified a possible partner</td>
<td>45%</td>
</tr>
</tbody>
</table>

Source: Survey of NRN Stakeholders

The NRN also conducted a survey on capacity building training for Local Action Groups (LAGs) under the LEDAER measure of Ireland’s RDP. This survey ensured that LAGs receive targeted training on themes they feel need to be addressed and its findings are discussed in more detail in Section 4.11 (Measure 19 LEADER).

**4.13.4 Conclusions**

Irish Rural Link in partnership with the Wheel, NUI Galway and Philip Farrelly and Co. was chosen to run Ireland’s National Rural Network following a competitive tender process in January 2016. €305,182.78 (10.2%) spent in 2016 on activities across a range of RDP themes. €73,769.30 of this was allocated to support the setting up and running of the NRN.

A dedicated NRN website was established in February 2016 and attracted over 12,500 views in its first year and 71.7% of these were unique visitors. The NRN published 4 quarterly newsletters and 10
monthly e-bulletins in 2016 that are sent to 1,321 members who have registered with the NRN online or at events organised or attended by the NRN. A total of 45 case studies, some covering multiple themes, were conducted in 2016 and the NRN will continue to compile at least two examples per quarter from all thematic areas of Ireland’s RDP.

The NRN has conducted a number of feedback surveys on participants at any event and conference that it has organised. The outcomes and lessons learnt from survey on participants at the NRN’s 1st Annual Conference on EIPs have contributed to the enhanced delivery of EIPs in Ireland. While over half of the respondents (55%) to this survey had already identified a possible partner, 45% of respondents had not. This finding triggered the NRN to offer a ‘matching service’ for EIP Projects whereby they promote any individual that is seeking a partner via the news section of their website and also by emailing the list of stakeholder names collected at the EIP conference as well as those stakeholders known by the Department.

4.14 Transitional Measures

4.14.1 Background
This section covers any expenditure from the 2014-2020 RDP that was used to support measures that were implemented under the 2007-13 RDP. Funding for these old programme commitments (Measures 212, 213, 214 and 216) were exhausted by 1 January 2014 and the schemes were subsequently funded using transitional funds until the end of 2016. Other than for the Less Favoured Areas Scheme (LFAs), which is an annual scheme, no further new commitments were undertaken in 2014 for these measures; so only on-going commitments were paid.

4.14.2 Methods Applied
Results from the Ex-Post Evaluation of the Rural Development Programme Ireland (2007-2013) which was carried out in 2016 are used to assess the impacts of these measures.

4.14.3 Measure 1 Rural Environment Protection Scheme 4 (REPS 4) Training

<table>
<thead>
<tr>
<th>Table 4.14.4 REPS 4 Training Indicator Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>O1- Total Public Expenditure</td>
</tr>
<tr>
<td>O3-The number of training operations supported</td>
</tr>
<tr>
<td>O4- No of Holdings</td>
</tr>
<tr>
<td>O11- The number of training days completed</td>
</tr>
</tbody>
</table>

Source: DAFM

REPS 4 Training was implemented under Measure 111 (Vocational Training) in Axis 1 of Ireland’s 2007-13 RDP and is currently assigned to Measure 1 under Priority 4 of the 2014-2020 RDP. The objective of REPS 4 Training was to provide participants with information on environmental benefits arising from the Agri-environment and Natura 2000 Measures, and to equip farmers with the knowledge and skills necessary to implement comprehensive environment actions. Just under €60,000 was paid to 556 participants who completed training under REPS 4 in 2015. €483 was paid to seven participants in 2016 that had carried out their training in 2015.

Surveys were carried out on beneficiaries of this training and findings suggested that this measure has significantly contributed to the growth in knowledge and skills available within the farming sector in Ireland. Over 83% of respondents who attended courses across schemes stated that this training/information was useful.

### 4.14.4 Measure 4 Targeted Agricultural Modernisation Schemes (TAMS I)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>O1-Total Public Expenditure</td>
<td>€5,897,718.44</td>
<td>€1,300,266.63</td>
<td>€1,710,135.95</td>
<td>€2,544,471.61</td>
<td>€11,452,592.63</td>
</tr>
<tr>
<td>O2-Total Investment</td>
<td>€14,744,296.10</td>
<td>€3,250,666.58</td>
<td>€4,275,339.88</td>
<td>€6,361,179.03</td>
<td>€28,631,481.59</td>
</tr>
<tr>
<td>O3-Number of actions/operations supported</td>
<td>634</td>
<td>120</td>
<td>840</td>
<td>1,231</td>
<td>2,825</td>
</tr>
<tr>
<td>O4-No of holdings/beneficiaries supported</td>
<td>512</td>
<td>120</td>
<td>747</td>
<td>1,211</td>
<td>2,590</td>
</tr>
</tbody>
</table>

Source: DAFM

TAMS I was implemented under Measure 121 of the 07-13 RDP and replaced the Farm Improvement Scheme (FIS) in 2010. Whilst the broad objectives of TAMS were the same as under FIS, market orientation and competitiveness were the primary focus of the new scheme. Four of the key areas which TAMS was designed specifically to address were dairy restructuring, animal welfare, renewable energies and water management. TAMS II which is under Measure 4 Ireland’s 2014-2020 RDP follows a similar structure to that which was in place for TAMS I. Expenditure under TAMS I from 2014 to 2016 was attributed to Focus areas 2A (Dairy equipment and Rainwater harvesting schemes) and 3B (Sheep handling and Farm safety schemes) and amounted to over €11 million.

A survey of TAMS I beneficiaries suggested that that the supported investments had a significant or moderate impact on improving the welfare of animals (89.2%), protecting the environment (85.3%), improving the safety on the farm (91.7%) and improving the quality of farm produce (81.5%).
The largest category of recipients, as shown by the survey of beneficiaries, was dairy farmers, with 40% of respondents stating that they were mainly dairy farmers. The fact that participation in the scheme had such a strong take-up among dairy farmers supports the contention that the scheme helped support restructuring in the dairy sector over the programme period.

Econometric evidence undertaken as part of the ex-post evaluation of Ireland’s 2007-13 RDP showed a positive and significant impact of investment support under TAMS I on farm output. While econometric counterfactual analysis suggested that Building Grants increased output above 3.4%, holding other factors equal.

### 4.14.5 Measure 4 AEOS Non Productive Investments

<table>
<thead>
<tr>
<th>Table 4.14.6 AEOS Non Productive Investments Indicator Data</th>
<th>2014/2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1- Total Public Expenditure</td>
<td>€11,783,154.64</td>
<td>€2,278,573.65</td>
</tr>
<tr>
<td>O3- No of Holdings</td>
<td>8,809</td>
<td>3,694</td>
</tr>
</tbody>
</table>

Source: DAFM

AEOS Non Productive Investments were implemented under Measure 216 of Ireland’s 2007-13 RDP. It aimed to support non-productive investments, in order to achieve the commitments undertaken for the agri-environmental schemes. Non-productive investments were investments that did not lead to any significant increase in the value or profitability of the agricultural holding. Examples include:

- Establishment and maintenance of habitats;
- Tree planting and management;
- Hedgerow planting; and
- Provision of alternative water source for bovines.

Actions classified under Measure 216 were integrated within REPS and AEOS and were funded under Measure 214. Support under AEOS Non Productive Investments has been allocated to Measure 4 under Priority 4 of Ireland’s 2014-2020 RDP. 12,500 holdings received €14.1 million for AEOS Non Productive Investments over the 2014 to 2016 period.
4.14.6 Measure 10 The Rural Environment Protection Scheme (REPS) and the Agri-Environment Options Scheme (AEOS)

Table 4.14.7 REPS and AEOS Indicator data

<table>
<thead>
<tr>
<th>O1- Total Public Expenditure</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>€187,791,332.06</td>
<td>€75,393,907.46</td>
<td>€28,088,309.94</td>
</tr>
<tr>
<td>O3- No of Holdings</td>
<td>31,540</td>
<td>17,732</td>
<td>5,647</td>
</tr>
<tr>
<td>O5- Area Supported</td>
<td>734,633 ha</td>
<td>218,375 ha</td>
<td>37,313.68 ha</td>
</tr>
</tbody>
</table>

Source: DAFM

The Rural Environment Protection Scheme (REPS) and the Agri-Environment Options Scheme (AEOS) were agri-environmental measures implemented under Axis 2 of Ireland’s 2007-13 RDP.

REPS opened in 2007 and closed to new entrants in July 2009, although many of the farmers who were participating in REPS at the beginning of 2010 still had the majority of their five-year contracts to complete. The objectives of the measure were:

- To promote:
  - Ways of using agricultural land which are compatible with the protection and improvement of the environment, biodiversity, the landscape and its features, climate change, natural resources, water quality, the soil and genetic diversity;
  - Environmentally-favourable farming systems;
  - Conservation of high nature value farmed environments that are under threat;
  - Upkeep of historical features on agricultural land;
  - Use of environmental planning in farming practice.
- To protect against land abandonment; and
- To sustain the social fabric in rural communities

AEOS was a further iteration of REPS, though the opportunity that the closure of REPS created was to further progress the design of the scheme to have much more targeted environmental impact. The objectives of AEOS were to meet the challenges of preserving and promoting biodiversity, encouraging water management and water quality measures and to a lesser extent, combating climate change. This scheme marked a significant change away from the ‘whole farm’ approach adopted by its predecessor, REPS, to a more ‘targeted’ approach allowing farmers to select specific environmental options through a menu-type approach that were deemed as being most appropriate to their individual farms.

Both of these agri-environmental schemes have been allocated transitional funding under Priority 4 and Measure 10 of Ireland’s 2014-2020 RDP. Support from Ireland’s 2014-2020 RDP to REPS and
AEOS amounted to €291 million over the 2014 to 2016 period with the number of holdings supported falling from 35,000 beneficiaries in 2014 to 5,600 in 2016 as contracts come to a close.

Indecon carried out a survey of beneficiaries under the REPS/AEOS schemes as part of the ex post evaluation of the 2007-13 RDP. It assessed the extent to which the scheme requirements impacted on the way they farmed and results showed that a large proportion of farmers suggested that the schemes had an impact on their farming methods (70.2%). The survey also asked beneficiaries about the impact of the REPS/AEOS supports on a number of aspects relating to their farming enterprise. It showed that 86.5% suggested that the payments had had an impact on the viability of the farm, 93.6% felt that it had helped protect the environment, 77.3% felt that it had impacted on water management, while 77.1% felt that it had impacted on biodiversity on the farm.

Indecon also conducted a counterfactual econometric model to assess the impact of REPS and AEOS funding. The model suggests that REPS and AEOS grants increased output and productivity and this may have longer-term impacts on land abandonment. Results show that receipt of REPS/AEOS funding results in a 0.4% increase in farm productivity as well as 1.75% increase in output. An innovative mapping analysis was also undertaken and this showed that the distribution of REPS funding was focussed on regions which contained the largest areas of environmental or ecological significance.

4.14.7 Measure 10 Organic Farming Scheme

<table>
<thead>
<tr>
<th>Table 4.14.8 Organic Farming Scheme Indicator Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>O1- Total Public Expenditure</td>
</tr>
<tr>
<td>O5- Area Supported (by Maintenance)</td>
</tr>
<tr>
<td>O7- No of Contracts</td>
</tr>
</tbody>
</table>

Source: DAFM

The Organic Farming Scheme (OFS) was an agri-environment measure implemented under Axis 2 of Ireland’s 2007-13 RDP. The new OFS is programmed under Measure 11 of Ireland’s 2014-2020 RDP, however transitional support under the old OFS is programmed under Measure 10. The specific objectives of the measure were to encourage producers to respond to the market demand for organically produced food and to deliver enhanced environmental and animal welfare benefits.

€13.5 million has been drawdown under the old OFS as transitional funding from Measure 10 of Ireland 2014-2020 RDP. As the contract period of the old scheme come to a close, a significant proportion of farmers are choosing to remain within the system. In 2016 for instance, almost three quarters of farmers that finished in the old scheme applied to extend their organic contract under the new OFS.

Results from the ex post evaluation of the 2007-13 RDP indicated that the level of subsidy would appear to have been low in comparison with differences in production costs compared to
conventional farming, the level of support for a number of supports provided under AEOS, and relative to the subsidy rates in other countries.

While it was not possible to put a monetary value on the various benefits that arise from organic farming, the information available was supportive of the contention that the subsidy provided under the OFS may have been insufficient, and that organic produce was under-provided relative to a societal optimal level in the period under question. It was not surprising, therefore, that the level of take-up of the support, and by extension the increase in area under organic farming to 55,000 ha, fell far short of its target of 220,000 ha. This has been addressed in the 2014-2020 RDP as there has been an increase in the rate of payment under the new OFS which contributed to attracting a record 942 applications into the first tranche of the scheme which opened in April 2015.

4.14.8 Measure 12 Natura 2000

Table 4.14.9 Natura 2000 Indicator Data

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1- Total Public Expenditure</td>
<td>€25,599,290.43</td>
<td>€11,680,639.80</td>
<td>€4,401,778.94</td>
</tr>
<tr>
<td>O4- No of Holdings</td>
<td>8,144</td>
<td>5,290</td>
<td>2,871</td>
</tr>
<tr>
<td>O5- Area Supported</td>
<td>187,466 ha</td>
<td>141,560 ha</td>
<td>67,297.65 ha</td>
</tr>
</tbody>
</table>

Source: DAFM

Natura 2000 sites are important ecological areas selected and designated by the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. These sites form part of a network of protected areas throughout the European Union. The network comprised of Special Protection Areas (SPA’s) and Special Areas of Conservation (SAC’s).

The Natura 2000 measure was designed to provide support to farmers to deal with specific disadvantages concerned with the conservation of natural habitats and wild fauna and flora in the effective management of Natura 2000 sites. Under the 2007-2013 RDP this scheme was implemented under Axis 2 and its objective was to contribute to the positive environmental management of farmed Natura 2000 sites and river catchments in the implementation of the Birds Directive, the Habitats Directive and the Water Framework Directive. Natura 2000 is supported under Measure 12 and Priority 4 of Ireland’s 2014-2020 RDP and €41.7 million has been spent over the 2014-2016 period.
4.14.9 Measure 13 Less Favoured Areas Scheme

Table 4.14.10 LFA Indicator Data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1- Total Public Expenditure *</td>
<td>€194,584,592.68</td>
<td>€13,245,205.19</td>
</tr>
<tr>
<td>O4- No of Holdings</td>
<td>110,419</td>
<td>13,938</td>
</tr>
<tr>
<td>O5- Area Supported</td>
<td>2,067,688.28 ha</td>
<td>135,919.87 ha</td>
</tr>
</tbody>
</table>

*€260,655 was paid in 2016 to any remaining beneficiaries of the LFA.

Source: DAFM

The Less Favoured Areas (LFA) were part of Measure 212 in the 2007-13 RDP and are now implemented under Priority 4 and Measure 13 of the 2014-2020 RDP. The scheme aimed to contribute to maintaining the countryside by promoting sustainable farming systems in marginal areas (so-called Natural Handicap/ Disadvantaged Areas) where farming activity may not be otherwise viable.

Ireland’s 2014-2020 RDP was not approved until May 2015 so LFA payments of approx. €195 million to over 110,000 beneficiaries were made in 2014. A further €13 million was paid to almost 13,000 farmers in 2015 which saw the introduction of the new Areas of Natural Constraints (ANC) scheme. €260,655 was paid in 2016 to a small number of remaining beneficiaries of the LFA.

Findings from Ex-Post Evaluation of the Ireland’s 07-13 RDP indicated that the farms covered by LFA payments typically had lower value-added farm systems and lower family farm incomes than in the rest of the country. Land was generally of a much poorer quality, which rendered full-scale commercial farming difficult or, in many regions, impossible. The high level of compliance (98.5%) with the terms of the scheme suggested that the maintenance of the countryside environment through farmland management was aligned with Programme requirements.

Evidence regarding the potential for land abandonment was mixed. In the absence of a counterfactual, it was not possible to definitively determine the likelihood of land abandonment in the absence of these supports. Such a counterfactual analysis was not feasible given that up 75% of Irish agricultural land was eligible for the support.

The evidence from survey results of LFA beneficiaries suggests that the scheme was perceived as having positive impacts on viability and on environmental objectives. In particular, 78.1% of respondents felt that LFA payments had had an impact on the viability of the farm, 79.2% felt that it had helped protect the environment, 86.5% felt that it had impacted on water management, while a lower portion (56.7%) felt that it had impacted on biodiversity on the farm.
5 Conclusions and Recommendations

5.1 Introduction

This section brings together the various analyses presented in the preceding sections to develop overall conclusions from the 2017 Evaluation of Ireland’s 2014-2020 Rural Development Programme. The overall objective of this evaluation was to demonstrate the progress and achievements to date of Ireland’s rural development polices through assessing the policy’s impacts, effectiveness, efficiency and relevance.

A range of advanced and rigorous methods were used to empirically evaluate the implementation of measures and schemes under the Programme. The methodological approach has involved the use of the following to evaluate the 2014-2020 RDP: a detailed consultation programme; survey evidence; detailed analysis of indicator data; external research; case studies; extensive new baseline analysis using Teagasc NFS data. The conclusions and recommendations as set out below draw on the output of these various forms of analyses as presented in this report.

5.2 Conclusions

The following are the key findings, which summarise the conclusion on each measure contained under Ireland’s 2014-2020 RDP:

1. Beef Data and Genomics Programme (BDGP) General Training Courses were rolled out across the country from 21st March 2016 and were completed in October 2016. 24,174 (97.5%) BDGP participants were trained in total over 940 BDGP training courses across 90 locations throughout Ireland. 99% of participants stated that they had a better understanding of the requirements of the BDGP following the training course whilst less than 1% stated that they had very little extra understanding.

2. Surveys carried out on private veterinary practitioners (PVPs) experiences of the training provided under the Targeted Advisory Service on Animal Health and Welfare (TASAHW) in 2016 show a clear improvement in the development of the knowledge base in the sector on Bovine Viral Diarrhoea (BVD) and Johne’s Disease (JD). 98% of PVPs that participated in the BVD training courses felt that the topics covered under the training were relevant or very relevant while 100% of participants felt that this was the case with the topics covered under JD training.

3. Results from a phone survey carried out on those that had investments approved under the Targeted Agricultural Modernisation Schemes (TAMS II) but have not yet carried out this investment show that 88% of applicants will carry out their investment with 70% of these planning to complete the investment within 1 year. This shows that expenditure under TAMS II is likely to increase substantially over the next period.

4. Over €700,000 was allocated to 48 farms under the GLAS Traditional Farm Buildings (GTFB) measure in 2016. Work was carried out on 72 buildings and 5 other related structures while 75 protected species and 35 natural habitats found within these buildings were undisturbed during the restoration process. Three case studies on beneficiaries under this scheme showed that they would not have been able to carry out the restorations using traditional crafts and materials in...
the absence of the GTFB. A large portion of the original materials were retained in the restoration of the buildings identified in the case studies which enhances the environmental benefits of the GTFB as this reduces the amount of waste material created.

5. While it is too early in the programme to fully analyse the results of the BDGP it is clear that improvements have been made in improving herd efficiency and fertility. Data for BDGP beneficiaries show that the calving interval improved by 8 days between 2015 and 2016 but is still some way off the optimal target of 365 days. The average calf per cow per year for BDGP beneficiaries has seen a very marginal improvement from 0.83 in 2015 to 0.84 in 2016. Improving the productivity of the herd by increasing the calf per cow ratio, lowering the replacement rate and by increasing the survival of cows in the herd and will lower methane production and in turn reduce carbon footprint on these farms. Baseline Teagasc NFS data shows that the majority of production intensive cattle farms are engaged in the programme and that BDGP beneficiaries have slightly higher emission rates than non-beneficiaries which indicates that the scheme is targeting optimal farms within Ireland’s cattle sector.

6. Results from an attitudinal survey on 175 Green Low-carbon Agri-environment Scheme (GLAS) beneficiaries show that 80% of respondents had undertaken farmland bird actions. Low input permanent pasture (47%) and farmland habitats (30%) were the second and third most popular actions undertaken. The key drivers of participation in GLAS were increased income/the scheme payment (68%), increased income stability (62%) and increasing the sustainability of the farm for future generations (66%).

7. Preliminary findings from a baseline field survey on GLAS actions show that particularly strong sightings were evident for some bird actions i.e. the chough action as sightings were recorded on or close to 17 of 30 targeted parcels. Moreover, 29 of the 30 targeted parcels for wild bird cover had birds present with over 100 birds spotted on 4 individual parcels. Results for some other species actions were more mixed and this is mainly due to the paucity of individual species generally in Ireland as the habitat conditions appeared to be suitable on the majority of the parcels surveyed. It is anticipated that habitat condition will improve over time from the baseline assessment period.

8. An evaluation report modelling pollutant emissions from agricultural land and the effect of changes in land management found that the percentage of the national pollutant load occurring from land within GLAS varies between 33% and 23% across the five measures selected. Nitrate (N) and phosphorus (P) from land within GLAS are calculated as 27% and 28% of the national pollutant load. Sediment (Z) accounts for the largest percentage (33%) of the national pollutant load attributed to land within GLAS while 23% of the national pollutant load occurring from land within GLAS is attributed to methane and 27% is attributed to nitrous oxide. These values are lower than the proportion of land (i.e. 32%) for most pollutants because dairy farms, which typically have the highest pollutant footprints, are less likely to be in GLAS.

9. Due to the delay in developing a mapping and planning system, the capital works element of the Burren Programme could not be introduced and this in turn led to slightly lower Intervention 1 (I-1) scores when comparing the Burren Programme to its predecessor; the Burren Farming for
Conservation Programme (BFCP). However, a solid baseline dataset of I-1 data was established on most Tranche 1 farms in 2016 and €228,379.84 in payments was issued to farmers. Five new advisors were recruited and trained, while a second tranche of farmers was also recruited into the programme and have received induction training.

10. A record number of applications were received under the Organic Farming Scheme (OFS) bringing the total number of organic farmers to just over 1,800. This is a 38% increase on organic producers since 2012. The Organic Farming Scheme has now met all targets for the RDP period in terms of intake and area. The 2023 target for conversion has been exceeded by 50% and the target for maintenance has been exceeded by 2.4%.

11. Almost 30% of the planned expenditure under Measure 13 Areas of Natural Constraints (ANC) was allocated to support farms in these areas in 2016 and payments are issuing on an on-going basis as beneficiaries meet the scheme eligibility requirements. 2015 Teagasc baseline data shows that farms in these areas have lower farm productivity, profitability and income than farmers in other areas. It also shows the ANC beneficiaries have lower levels of GHG emissions and a lower Nitrogen surplus.

12. Data on the age profile and viability of CFGS beneficiaries shows that the scheme is targeting farms that can support all those involved in a partnership and will therefore contribute to generational renewal on Irish farms. However research on supporting succession and inheritance through farm partnerships shows that the CFGS provides only a minor incentive as it alleviates some costs associated with the setting up of a partnership.

13. As expenditure in 2015 and 2016 under LEADER was based on preparatory and administration activities only it was not possible to evaluate and fully assess the extent to which LEADER funding has supported local development in rural areas. The primary objective in these years was the selection of Local Action Groups (LAGs) to design and implement the Local Development Strategies (LDS). LAGs were selected in all of the 28 sub-regional areas in 2016 with funding agreements signed with all 28 groups. Given that the LAG selected in the Galway sub-regional area did not cover the entire county, a separate LAG and LDS was established for the “East Galway” region in 2017 bringing the total number of LAGs to 29.

14. Rural Development Division of the DAFM is the Managing Authority (MA) under the RDP and it has the responsibility of managing and drawing down the Technical Assistance allocation. 11% of the Technical Assistance budget under Ireland’s 2014-2020 RDP has been used to conduct a number of evaluations, establish a National Rural Network, implement a range of actions under the information and publicity strategy and provide an administrative support service for number of RDP measures.
5.3 Recommendations

A number of recommendations based on the findings of the 2017 Evaluation of Ireland’s 2014-2020 Rural Development Programme have been formulated with the objective of improving the evaluation framework of the RDP in order to ensure the impacts of all measures under Ireland’s RDP are fully assessed in advance of the 2019 AIR and the 2024 RDP Ex-post Evaluation.

1. Training is a compulsory element of the Beef Data and Genomics Programme (BDGP). For BDGP II, it is important that the same process is used to ensure that participants attend the training courses and complete training. 97.5% of BDGP I participants completed the training element in the required timeframe and herds that did not attend the training course or complete the carbon navigator within six months of the deadline have been disqualified from the BDGP and any payments made are now subject to recovery.

2. Data should be collected on environmental indicators in order to assess the impact of support under the Organic Farming Scheme and to fully address the associated Common Evaluation Questions. This can be done by matching OFS beneficiaries to Teagasc National Farm Survey data to monitor the progress of the nitrogen balance and greenhouse gas emissions on farms over the lifetime of the scheme.

3. While data has been collected on the number of protected species and natural habitats found in buildings supported under the GLAS Traditional Farm Buildings (GTFB). This should be used to provide a detailed breakdown of the type of habitats and species conserved through the restoration of these buildings in order to further assess the impact the measure has on the enhancement of biodiversity. Traditional building crafts and methods used to restore Traditional Farm Buildings are more labour intensive than some of the modern techniques. There will be an increase in the use of local professionals, contractors and material suppliers. Data should also be collected to take account of the employment benefit in rural areas due to the restoration of buildings under the GTFB which will occur as a secondary effect of the scheme.

4. TAMS II approvals were used to establish the baseline position of TAMS, and non-TAMS participants captured in the NFS. Approvals under TAMS were used instead of payments due to the low level of payments made under TAMS to end 2016. Matching payment data with 2015 NFS data would have resulted in small sample with limited statistical significance. As more payment data becomes available, Teagasc NFS data should be matched with TAMS beneficiaries i.e. those where the investment has been completed and payment has issued.

5. Teagasc NFS data should be matched with TAMS beneficiaries at a greater level of detail than the overall scheme i.e. analysis should be conducted at the TAMS strand level. This would enable future evaluations to accurately assess the impact of TAMS investments on achieving the objectives of the scheme. However, it may be difficult to report by TAMS strand in the first few years of the scheme if the number of completed investments is low.

6. Further analysis should be conducted to establish suitable control groups taking into account the farm type and other relevant characteristics for the counterfactual analysis of GLAS, TAMS II and Collaborative Farming Grant Scheme beneficiaries using Teagasc NFS Data.