# Indecon Mid-Term Evaluation of the Rural Development Programme Ireland (2014-2020)

Submitted to

## Department of Agriculture, Food and the Marine

Prepared by

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Final Report

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# Executive Summary

## Introduction and background

This independent report is submitted to the Department of Agriculture, Food and the Marine by Indecon International Research Economists in association with the Countryside and Community Research Institute (CCRI), University of Gloucestershire. The report concerns the Mid-term[1] Evaluation of the Rural Development Programme, Ireland (2014-2020). Indecon-CCRI were appointed following a competitive tender process.

The background and policy context for the 2019 evaluation of the RDP for Ireland is Council Regulations (EC) 1305/2013 and 808/2014 which set the legal framework for evaluation of rural development support for the period 2014-2020. They state that a mid-term evaluation is required to be carried out on each Member State's programme. The EU legislation to design RDP 2014-2020 builds on previous RDP programmes and sets out the following three objectives:

- Enhancing the competitiveness of agriculture;
- Ensuring the sustainable management of natural resources and climate management; and
- Achieving a balanced regional development of rural economies and communities.

These general objectives are given more detailed expression in six RDP priorities which are aimed to ensure that Member States adopt a common approach for designing their RDPs. These priorities include:

- Priority 1: Fostering knowledge transfer and innovation in agriculture, forestry and rural areas;
- Priority 2: Enhancing the viability/competitiveness of farms and all types of agriculture;
- Priority 3: Promoting food chain organisation and risk management in agriculture;
- Priority 4: Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry;
- Priority 5: Promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors; and
- Priority 6: Promoting social inclusion, poverty reduction and economic development in rural areas.

## Evaluation Context

The Rural Development Programme 2014-2020 for Ireland is part of the Common Agricultural Policy: a common set of objectives, principles, and rules in order to co-ordinate the EU agricultural support in Member States. The seven-year span of the programme has €4 billion of funding, of which €2.19 billion is provided from EU resources. The 2014-2020 RDP is consistent with the EU strategic guidelines for rural development under EU2020. It also reflected a number of national policy objectives in the area of rural development as well as the development of the farming and wider agri-food sectors. These include strategies such as Food Harvest 2020 (FH2020) and Foodwise 2025 (FW2025).

The economic situation in Ireland has improved significantly since the commencement of the Programme and there was a sustained increase in employment and increases in incomes. The agricultural sector however experienced more volatility. The average family farm income in Ireland improved in 2017 following the low levels of farm income recorded in 2016 but fell again in 2018. This reflects the volatility of incomes in the sector which is an issue both for the RDP and for other EU and national policies. One of the features of Irish agriculture is its dependence on export markets. This suggests that Brexit has the potential to significantly negatively impact on Irish agriculture.

[1] This also relates to an enhanced 2019 Annual Implementation Report

## Methodological Approach to Evaluation

In line with European Commission guidance, Indecon has used a range of advanced and rigorous methods to empirically evaluate the impact of the 2014-2020 RDP for Ireland. We have applied a 'triangulation' of methodologies, with the objective of cross-confirming qualitative and quantitative measures and, where possible, we have evaluated counterfactual impacts. It is also worth noting that this is an interim evaluation and many of impacts are not yet observable and the full results will only be evident over time.

Our approach has involved the application of the following methodologies:

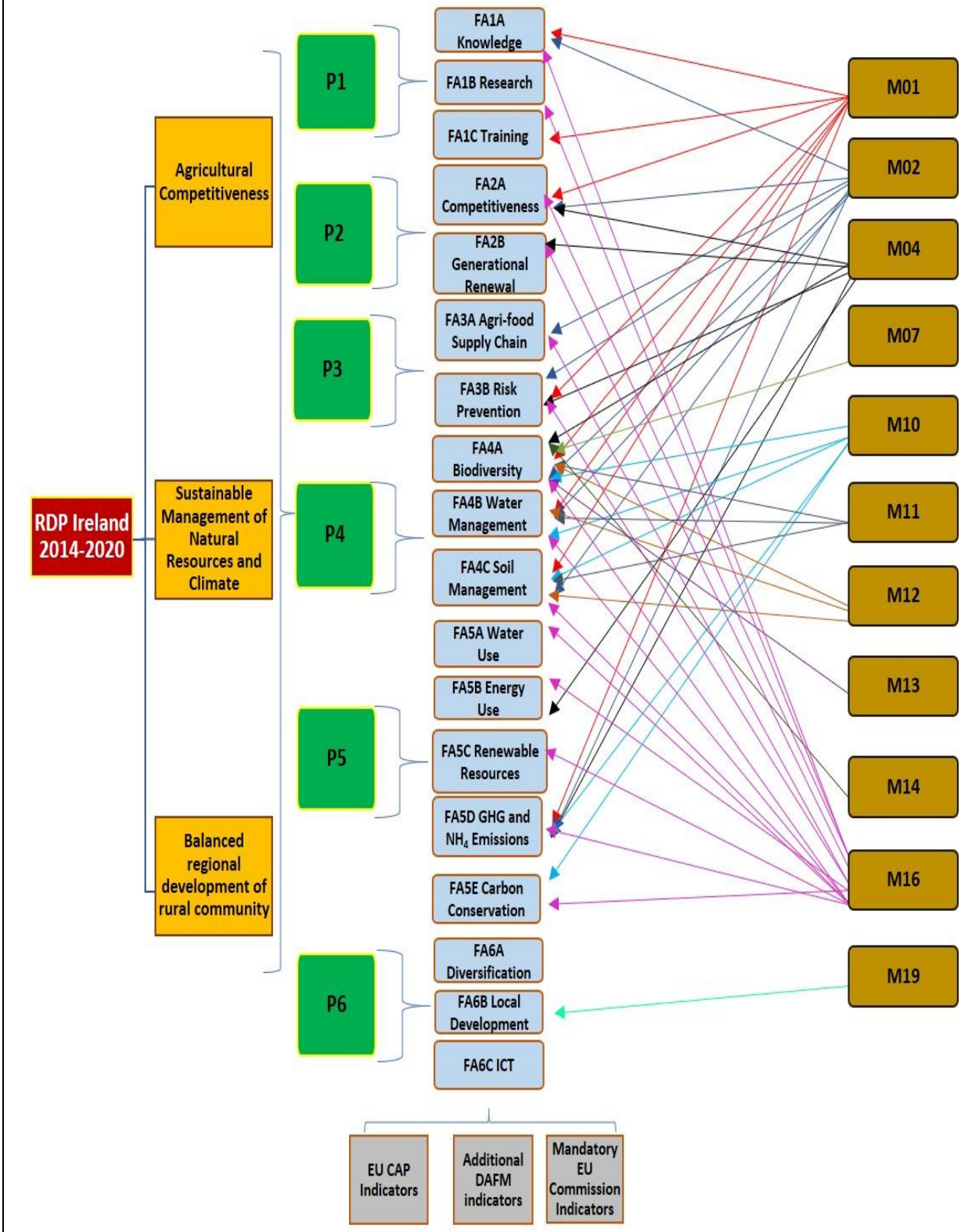
1. **Bio-Economy and Regional Input-Output Model;**
2. **Econometric Counterfactual Models;**
3. **Spatial Analysis;**
4. **Consultation Programme;**
5. **Case Studies;**
6. **New Survey Evidence which received 1,371 responses; and**
7. **Analysis of Indicator Data.**

Given the need to ensure the best use of scarce EU and national resources, it is appropriate to use a range of methodologies to examine the impact of the Programme. More detail on the methodological approach is provided in Section 3 of the main report.

## Description of Programme and review of Budget and Expenditure

The overall objectives of the RDP (enhanced competiveness, sustainable management and balanced regional development) are further detailed into six broad priority areas. These priorities are distributed into key focus areas related to the competitiveness and viability of agriculture and agri-environment objectives. The Irish RDP delivers support through eleven measures which are further divided into 19 submeasures. The relationship between these measures and their focus areas is illustrated in the next graphic. This shows how certain RDP measures contribute to a number of areas. For example, the on-farm capital investment measure (TAMS II) is targeted at improving the competitiveness of agriculture but it also links to the various agri-environmental related areas of the RDP. The graphic also illustrates the complexity of the Programme and the diversity of focus areas.

**RDP Linkages and Objectives**




***Source: Ireland RDP 2014-2020 Documents and Reports***

At the end of 2018, approximately 57% of the overall RDP allocation was spent. The allocation of RDP 2014-2020 funding was highest in Measure 13 (Payment to areas facing natural constraints or other specific constraints), followed by GLAS under Measure 10 (Agri-environment and climate), and TAMS II under Measure 4 (Investment in physical assets). The levels of expenditure as at the end of 2018 are shown in the next table. The results indicate that while good progress has been made on spend there are a number of measures where spend is significantly below the expected levels. While expenditure is expected to increase significantly in 2019 and 2020, it is important that where targets are unlikely to be met, that funds are reallocated. Indecon understands however that the Department expects that overall spend for the entire programme will be greater than the original allocation. Any carry-over would need to be funded from the next programming period 2021-2027.

| RDP 2014-2020 Current Spending (End-2018) versus Allocations | | | | | |
|---|---|---|---|---|---|
| **Measure** | **Submeasure** | **Total Scheme Allocation (€ Million)** | **Total Expected Spend (€ Million)** | **Total Current Spend (End-2018) (€ Million)** | **% Vs. Expected Spend** |
| M1: Knowledge Transfer and Information Action | Knowledge Transfer Groups | 99.70[2] | 69.00 | 35.4 | 51.4% |
| | Training in support of GLAS | 12.00 | 12.00 | 11.3 | 94.4% |
| | BDGP Training | 14.10 | 10.70 | 10.4 | 97.4% |
| M2: Advisory Services, farm management, and farm relief services | CPD for Advisors | 2.00 | 2.00 | 0.1 | 5.9% |
| | TASAH Advisory | 6.00 | 3.53 | 1.0 | 28.7% |
| | Setting up POs | 0.30 | 0.30 | | 0.0% |
| M4: Investment in Physical Assets | TAMS II | 381.70 | 387.99 | 106.11 | 27.3% |
| | TAMS I (transitional) | 13.30 | 7.38 | 7.23 | 98.0% |
| | AEOS (transitional) | 30.00 | 15.77 | 15.81 | 100.0% |
| M7: Basic Services and village renewal in rural areas | GLAS Traditional farm buildings | 6.00 | 6.00 | 2.3 | 38.6% |
| M10: Agri-environment-climate | GLAS | 920.45[3] | 1,082.66 | 528.7 | 48.8% |
| | Burren Programme | 12.86[4] | 12.86 | 2.1 | 16.6% |
| | REPS/AEOS/OFS Trans. | 316.80 | 315.5 | 315.5 | 100% |
| | BDGP | 280.90 | 271.72 | 168.8 | 62.1% |
| M11: Organic Farming | Organic farming scheme | 56.00 | 65.76 | 23.3 | 35.5% |
| M12: Natura 2000 and WFD | Old Natura AEOS/REPS (Transitional) | 73.25 | 46.74 | 44.6 | 95.3% |
| M13: Payments to areas facing natural or other specific constraints | ANC | 1491.00 | 1492.80 | 1042.5 | 69.8% |
| M14: Animal Welfare | Sheep Welfare Scheme | 100.00[5] | 78.78 | 33.5 | 42.5% |
| M16: Co-operation | General EIPs | 4.00 | 4.00 | 0.1 | 1.8% |
| | Locally led HH and FWPM | 35.00 | 35.00 | 3.5 | 10.1% |
| | Locally led environment and climate | 20.00 | 20.00 | | 0.0% |
| | Collaborative Farming | 3.00 | 2.21 | 1.0 | 46.9% |
| M19: Support for LEADER local development (CLLD-Community-Led Local Development) | LEADER | 250.00 | 250.00 | 36.1 | 14.4% |
| M20: Technical Assistance and Transitional Funding | Tech. Assistance | 8.14 | 6.45 | 3.3 | 32.5% |
| ERS (Transition) | | 9.21 | 7.70 | 7.5 | 97.2% |
| ***Total*** | | ***4,145.71*** | ***4,206.85*** | **2,399.0** | ***57.0%*** |
| ***Source: RDP 6th Amendment document, DAFM indicator data and RDP Expenditure Review June 2018*** | | | | | |

[2] €300,000 reallocated to allow for the introduction of the Beef Producer Organisations Scheme.
[3] €70m reallocated to allow for the introduction of the Burren Programme and the Locally Led EIPs.
[4] The Burren Team is funded under Measure 20 Technical Assistance.
[5] €100m additional national financing allocation for the Sheep Welfare Scheme.

### Programme-Level Impact of RDP on the Rural Economy in Ireland

A number of different economic models have been employed to analyse the wider programme-level impacts of the RDP expenditure. These include a Bio-Economy Input-Output model and a Two-Region Input-Output model of the Irish economy. The supply-side impacts of RDP support were also examined by Indecon as part of this evaluation. The estimated rural expenditure impact of the RDP as at the end of 2018 is presented in the table below. If we assume that the expected level of expenditure is all spent by the end of the programme, we estimate that there will be €3,217 million in direct and indirect impacts. If we include induced impacts, this figure rises to €3,629 million.

| Estimated Rural Expenditure Impacts (€million) | | | |
|---|---|---|---|
| | **Direct Impacts** | **Direct + Indirect Impacts** | **Direct + Indirect +Induced Impacts** |
| Regional Impact – Output* (2014-2018) | €1,311 | €1,863 | €2,101 |
| Regional Impact – Output (Assuming all of the Expenditure is spent by the end of the programme) | €2,263 | €3,217 | €3,629 |
| ***Source: Indecon Expenditure Impact Assessment Model*** | | | |
| * These are derived by getting the product of the RDP expenditure by first-round regional expenditure share. The estimates only include the actual expenditure up to the end of 2018. | | | |
| *****Indirect Output Multiplier of 1.42 used; Induced output multiplier of 1.6 used*** | | | |

Indecon's multipliers are based on the most up to date detailed evidence from an input-output model of the Irish economy. These rigorously measure the economy wide impact of the expenditure of the programme and do not represent a cost benefit analysis. In contrast to measuring programme level impacts any cost benefit analysis of specific measures would consider non-expenditure impacts and would also take account of the shadow price of public funds, and the level of deadweight. In our counterfactual econometric modelling of specific measures we attempt to measure the impact compared to what would have occurred without the investment. It would also be usual in a cost benefit analysis in an Irish context to exclude induced effects.

Using survey evidence, Indecon has estimated that around 86% of the direct and indirect benefit of RDP expenditure is within 35 km of the RDP beneficiaries thereby primarily benefitting the rural economy. Our estimates using an input-output model suggest that the expenditure impacts of RDP are likely to result in approximately 4,881 jobs nationally, of which 4,178 are estimated to be in the rural economy. More detail on the approach used to derive these estimates is included in Section 5 of the main report. The RDP is also likely to have had positive supply-side impacts, but these will only be evident after a time lag. The rural expenditure and employment impacts at the end of the Programme will be greater than estimated at this stage of implementation.

| Estimated Rural Employment Impacts of RDP Expenditure | | |
|---|---|---|
| | **Employment Annually (National)** | **Employment Annually (Rural Areas)** |
| Employment Impacts | 4,881 | 4,178 |
| ***Source: Indecon Expenditure Impact Assessment Model*** | | |

The figures shown in the next table highlight the increase in rural employment rate, the decline in rural poverty and the increase in rural GDP. The comparison with national data however demonstrates the scale of challenge

faced by the RDP. While the overall employment rate in rural areas increased, not all of this can be attributed to the RDP.

| CAP Impact Indicators to Rural economy | | | | |
|---|---|---|---|---|
| | Rural Areas[6] | | State | |
| **Indicators** | **2014** | **2018** | **2014** | **2018** |
| Employment Rate | 62.4% | 67.8% | 63.1% | 68.6% |
| Degree of Poverty | 19.7% | 17.1%* | 13.1% | 13.6%* |
| Rural GDP per capita | 25,200 | 28,400* | 42,000 | 61,200* |
| Population (15-64) | 1,273,500 | 1,249,100 | 3,061,200 | 3,175,800 |
| ***refers to 2017 data as this is the latest available*** | | | | |
| ***Source: Indecon Analysis of Eurostat data*** | | | | |

### Review of Agri-Environment-related Priority Areas

Measures supported under Priority Areas 4 and 5 typically come under the overall CAP objective of ensuring sustainable management of natural resources and climate management. The main measures under Priority Areas 4 and 5 include Green, Low-Carbon, Agri-Environment Schemes (GLAS), Beef Data and Genomics Programme (BDGP) and Areas of Natural Constraint (ANC). These three measures account for nearly 68% of the overall RDP budget. Other schemes contributing to Priority Areas 4 and 5 include the Organic Farming Scheme, the Burren Programme, the locally-led European Innovation Partnership Operational Groups and the GLAS Traditional Farm Building Scheme. There are also significant links to some of the measures that impact on competitiveness such as the agri-environment aspects of the EIPs and TAMS II. Elements of Measure 1 that relate to BDGP and GLAS training are also directly relevant. The largest support that falls under the sustainable management of land is Measure 13 (Areas of Natural Constraint).

| Measure, targeted Focus Areas and Priority Areas (Sustainable Management of natural resources and climate management) | | |
|---|---|---|
| **Measures** | **Submeasures** | **Focus Areas** |
| M7: Basic Services and village renewal in rural areas | M7.6: GLAS Traditional farm buildings | FA4A |
| M10: Agri-environment-climate | M10.1: GLAS and GLAS+ | FA4A, FA4B, FA4C, FA5D, FA5E |
| | M10.1: BDGP | FA5D |
| | M10.1: The Burren Programme | FA4A |
| M11: Organic Farming | M11.1 and M11.2: The organic farming scheme | FA4A, FA4B, FA4C |
| M12: Natura 2000 and WFD (Transitional) | M12.1: Natura 2000 and WFD | FA4A, FA4B, FA4C |
| M13: Payments to areas facing natural or other specific constraints | M13.2: Areas of Natural Constraints (ANCs) | FA4A |
| | M13.3: Specific support for offshore island farming | FA4A |
| M16: Locally led EIPS | M16.1: HH / FWPM / Environmental & Climate Change Projects | FA4A, FA4B, FA4C,FA5A FA5B, FA5C, FA5D, FA5E |
| ***Source: Indecon Review of RDP Documents*** | | |

The key target indicators for the agri-environmental schemes are shown in the table below. It must be noted that many of these RDP target indicators are likely to be met or exceeded by the end of the programme. It must be noted that these indicators represent planned outputs and the associated impacts may take a number of years to become observable.

[6] A **rural** area is defined by Eurostat is an area where more than 50 % of its population lives in areas that are not identified as urban centres.

| RDP Target Indicators for Sustainable Management of natural resources and climate management | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| T9- % of holdings under biodiversity/landscape contracts | 16.97% | 1.24% | 18.21% | 20.77% |
| T10- % of holdings under water management contracts | 18.40% | 2.00% | 20.4% | 20.91% |
| T12- % of holdings under soil management contracts | 16.39% | 1.91% | 18.3% | 18.08% |
| T17- Number of LUs under contracts to reduce GHG/ammonia emissions | 26,082 | 44,264 | 70,346 | 11,500 |
| T18- % of land under contracts targeting a reduction of GHG/ammonia emissions | 11.17% | 1.28% | 12.45% | 10.79% |
| T19- % of agricultural and forest land under management to foster carbon conservations | 0.08% | - | 0.08% | 0.32% |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | |

Training to support some of the significant agri-environment schemes (GLAS and BDGP) was implemented in the early stages of the 2014-2020 RDP. This training was a requirement for participation in these schemes. GLAS replaced the previous AEOS scheme and is the main agri-environmental measure of the RDP.

Statistical analysis, using the National Farm Survey, indicates that GLAS beneficiaries typically have lower income, have less capital investment and lower livestock units than non-GLAS participants. Indecon's counterfactual econometric analysis indicates that GLAS is likely to have a small positive impact on farm incomes. Analysis indicates that the spatial distribution of GLAS beneficiaries is very much in line with the Special Areas of Conservation (SACs) and Special Protected Areas (SPAs); predominantly in the western, north-western, and south-western regions of Ireland.

Survey evidence[7] suggests that GLAS has achieved a number of key benefits including maintaining hedgerows, increasing biodiversity on farms and improving water quality. Evidence collected at the farm level by ADAS indicates that over 75% of required actions were completed. The survey results for 2017 indicate that most of the intended measures of success witnessed positive change. However, exceptions to this were Riparian Margins, Twite, Traditional Dry-stone wall, Conservation of Solitary bees, and Protection of water-courses from Bovines. The findings from the ADAS biodiversity report indicated that around 66% of sites were deemed to have outcomes that could not be achieved without GLAS support. 88% of farms had implemented actions appropriately with no missed opportunities.

Modelling undertaken by ADAS on the environmental impact of GLAS on water quality and pollutants suggests that GLAS will lead to a long-term annual reduction of between 5-9% for nitrate, phosphorus, nitrous oxide and methane on GLAS supported farms. The overall national impact is smaller as 32% of farmland is in GLAS. Recent data from EPA for 2017 indicate that while ammonia emissions have increased reflecting the increase in agricultural production, the emissions per unit of output decreased over this period. ADAS concludes that the major cause of these reductions is likely to be the Low Input Permanent Pasture action (and the comparable Natura Habitat and Farmland Bird actions). This action has the highest level of uptake.

The Beef Data and Genomics Programme (BDGP) requires beneficiaries 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 such as reduced Green House Gas emissions. This scheme will take a number of years before impacts are measurable. This is due to replacement rates in the herd and non-BDGP herds. It is therefore not possible in this interim report to make a definitive conclusion on the success or otherwise of the BDGP at this stage. However, preliminary evidence indicates that BDGP cows are calving at younger ages which is consistent with the objectives of the BDGP scheme. The mechanism in the BDGP payments are based on the level of stock recorded in the reference year ensures that there is no incentive for recipients to increase herd

[7] This is based on the survey undertaken by ADAS who are conducting an evaluation of GLAS.

size. The analysis also shows that the number of cows moving from lower rated to higher rated is higher for BDGP herds than non-BDGP herds. Based on analysis by the ICBF on differences in cow weight, calf wean weight and calving, it is estimated that higher rated cows are likely to have lower $CO_2$ emissions by around 6% per animal. It must also be noted the types of farms that are typically in receipt of BDGP support are in the western half of the country where the land quality is poorer. It is also likely that many of the farmers who receive BDGP also receive GLAS and ANC support. This is important in terms of sustained environmental improvement and the links between BDGP and GLAS are important in this context.

The largest measure (in public funding terms) in the RDP is Measure 13 (ANC). This support is received by over 70% of active farmer beneficiaries. This support is provided to farm holdings who face natural disadvantages in their farmland. One of the rationales for this support is the public good value of maintaining agricultural land. New survey evidence suggests that around 27% of ANC supported farms would have become abandoned without this support. Indecon believes that it is likely that farmers interpreted this to mean to all payments rather than just the impact of the ANC payment. Thus, this figure may be an overestimate of the impact of ANC on land abandonment. Based on survey evidence, it also likely that a very small minority of 7% of the farms would have had to be sold or taken over by a family member without this support. In order to examine the public good aspect of the support, Indecon surveyed farmer beneficiaries on the public good type features that exist on their farms. The results indicate that of ANC farmer beneficiaries, 62% of farms have physical landscape features (stone walls, old farm buildings etc.); 58% have landscape features such as lakes and rivers; 29% have cultural heritage features; and 12% have walking trails used by the public. These features are likely to have a value for society and ensuring that they are protected should remain an important feature of the RDP. While there is a large range in the estimates for the monetary value of public goods, international evidence provides some indicative estimates of the landscape value which is around €120 per hectare supported per year. Based on applying this value the indicative estimate of the landscape value generated by RDP from 2014-2020 is around €285 million per annum. Our analysis indicates that ANC supports are an important source of income for farms that are significantly below the average farm income. The payments to ANC supported farms are based on costs incurred and income foregone and do not include a premium for such a landscape value.

The OFS has a budget of €56 million over the 2014-2020 RDP. The target for the RDP was to attract some 16,000 hectares of new land into production and to support 46,000 hectares of converted land. These targets were achieved in 2016. The scheme was re-opened in November 2018 and received over 200 applications. At the end of 2018, around 42% of this budget has been spent supporting around 1,368 holdings. As these are long-term contracts, this expenditure will increase during the rest of the programme to support the maintenance of these organic holdings. The most recent result indicators show that around 2.7% of the total land area is being maintained as organic. In the period 2014-2018, the total new organic land is estimated to be around 1.2% of the total land area which suggests progress is being made.

### Review of Competitiveness-related Priority Areas

Priority Areas 1-3 and their associated focus areas include measures to foster knowledge transfer and innovation, enhance the viability and competitiveness of agriculture, and to promote food chain organisation and risk management in agriculture. The next table highlights that many of the Priority 1-3 measures will also impact on Priority Areas 4 and 5. Measures like Knowledge Transfer Groups and the European Innovation Partnerships (EIPs) are relatively small measures of the RDP in budgetary terms but have potential impacts on a number of different focus areas across both enhanced competitiveness and environmental sustainability.

| Measure, targeted Focus Areas and Priority Areas (Competitiveness) | | |
|---|---|---|
| **Measures** | **Submeasures** | **Focus Areas** |
| M1: Knowledge Transfer and Information Action | M1.1: Knowledge Transfer Groups | FA1A, FA1C, FA2A, FA3B, FA4A, FA4B, FA4C, FA5D |
| | M1.1: Training in support of GLAS and BDGP | FA1A, FA1C, FA4A, FA4B, FA4C, FA5D |
| M2: Advisory Services, farm management, and farm relief services | M2.1: Support for setting up of Producer Organisation | FA3A |
| | M2.1: Animal Health and Welfare- On farm Advice | FA1A, FA3B |
| | M2.3: CPD for Agricultural services | FA1A, FA2A, FA4A, FA4B, FA4C, FA5D |
| | M2.3: Animal Health and Welfare: Training for Advisors | FA1A, FA3B |
| M4: Investment in Physical Assets | M4.1: Targeted Agricultural Modernisation Schemes (TAMS II) | FA2A, FA2B, FA3B, FA4A, FA5B, FA5D |
| M14: Animal Welfare | M14.1: Animal Welfare Scheme (Sheep) | FA3A |
| M16: Co-operation | M16.1: European Innovation Partnership (EIP)- General EIPs | FA1A, FA1B, FA2A, FA2B, FA3A, FA3B |
| | M16.3: Support for Collaborative Farming | FA1A, FA1B, FA2A, FA2B |
| ***Source: Indecon Review of RDP Documents*** | | |

The key target indicators for projects relating to enhancing competitiveness are shown in the table below. The results of these are mixed. The number of participants who have been trained under measure 1 is likely to meet the planned target level and this is encouraging considering the importance of training in the context of GLAS and BDGP. However, the percentage of holdings who have received support for modernisation is considerably below the planned target level for 2023. However, this is likely to increase in the remaining years of the programme as spend on TAMS II increases.

| RDP Target Indicators for enhancing Competitiveness objective | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| T3 - No. of participants trained under Measure 1, including KT, BDGP & GLAS. | 67,689 | 24,909 | 92,598 | 111,600 |
| T4 - % of holdings with support for investments in restructuring/modernisation | 1.37% | 1.29% | 2.66% | 9.11 |
| R2 - Change in agri. output on supported farms/AWU* | 6.57% | Data not available | Data not available | |
| T5 - % of holdings RDP supports for young farmers** | 0.41% | 0.75% | 1.16% | 2.86% |
| No. of EIP operational groups to be supported for project implementation. | 1 | 7 | 8 | 22 |
| No. of other cooperation operations~ | 654 | 129 | 783 | 1,200 |
| **** This is calculated over a two-year period from 2015 to 2017 looking over the change in productivity across these periods. This only relates to TAMS beneficiaries compared to non-TAMS beneficiaries*** <br> *****This is based on the Young farmers supported through TAMS II*** <br> ***Source: Indecon Analysis of DAFM Indicator Data.*** <br> ***~: Refers to Number of New Farm Partnership agreements funded by the Collaborative Farming Grant Scheme*** | | | | |

In terms of the relationship between receipt of the KT payment and farm output and productivity, a counterfactual analysis is not feasible due to the small number of observations in the National Farm Survey and only one time period of data. However, the sample fixed effects results of new econometric analysis undertaken by Indecon (implying correlations) suggest a potential positive association between the receipt of the KT payment and farm output and agricultural incomes. Our survey evidence also indicates that 57% of beneficiaries suggested they would not have participated in a knowledge transfer group without the RDP support. This suggests that relatively low levels of deadweight. This survey also indicated that the scheme has positive

impacts on risk prevention, agricultural competitiveness, creating a knowledge base in rural areas and agri-environmental issues.

The largest measure directly relating to enhancing the competitiveness of agriculture is TAMS II which involves investment in physical assets. Indicator data shows that €129 million have been spent as part of TAMS I and TAMS II at the end of 2018.[8] TAMS II involves grant support for a number of different schemes including the Dairy Equipment Scheme, Young Farmer's Capital Investment Scheme, Animal Welfare Safety and Nutrient Storage scheme, Pig and Poultry Investment and Low Emission Slurry Spending. It is noted that the capital investment support under Measure 4 includes support for measures to help improve the environmental impact of the farm. Indecon would expect that the impacts of this investment will only be seen over time. This is consistent with the results of our econometric counterfactual modelling of TAMS II which does not indicate any significant impact to date on farm output or productivity. However, new econometric counterfactual modelling which Indecon has completed and which includes the capital investment in previous rounds of RDP leads to results that confirm a positive impact of capital grants on farm output and productivity. The results are presented in the next table. A positive impact of a capital investment grant on farm output and productivity is found. This is measured by the treatment impact, namely ATET.[9] The estimates of impact from our counterfactual econometric models suggests a positive impact on output on from 6 – 7% and an increase in productivity of the order of 5 – 6%. For example, in interpreting the results it is useful to consider the results of one of our key econometric models, namely the propensity score matching model. This is an econometric model which attempts to measure the impact of the RDP TAMS II[10] investment on farms, compared to similar farms who did not make the investment. The results indicate an impact on output measured by ATET of 0.0686 which suggests a 6.86% increase in output compared to what would have occurred without TAMS II investment.

**Impact of TAMS II on Output and Productivity (2001-2017)**

| Econometric Estimation Model | Outcomes Variables | ATET | Observations |
|---|---|---|---|
| **Regression Adjustment Model (RA)** | Log Output | 0.0728***<br>(0.0111) | 15,170 |
| | Log Productivity | 0.0546***<br>(0.0130) | 15,168 |
| **Propensity Score Matching** | Log Output | 0.0686**<br>(0.0304) | 15,250 |
| | Log Productivity | 0.0665***<br>(0.0246) | 15,246 |

Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1
Indecon Analysis on NFS Data.

Overall, our modelling and analysis suggests that the RDP support will contribute to enhancing the competitiveness of agriculture. This enhancement of competitiveness is likely to be mainly through capital investment measures. Indecon analysis has also found that the Knowledge Transfer Groups are likely to have a small positive impact on competitiveness but it is difficult to quantify the impacts at this stage of the Programme.

### Review of impact on Balanced Regional Development

The RDP had an objective of promoting balanced regional development and as well as measures to maintain overall employment and farm viability in rural areas. This was supported through the implementation of Measure 19 (LEADER). The initial overall allocation for this measure was €250 million between 2014-2020, which represents around 6% of the overall RDP allocation. At the end of 2018, the expenditure on this measure

[8] This amount includes €15.81 million for non-productive investments under AEOS from previous RDP.

[9] Average Treatment Effect on the Treated is the estimate of the net impact of the grant on the beneficiaries compared to the non-beneficiaries.

[10] We note that capital investment grants have been part of different schemes during previous RDPs. The analysis above relates to capital investment grants.

was just over €36 million. However, it should be noted that the expected project spend, as outlined in the milestones developed for LEADER, was 16% at the end of 2018 (around €40 million). It is likely that this will increase in 2019 and 2020 as a large number of projects have been approved since 2018.

While the overall RDP has impacted on regional development and employment in rural areas it is also useful to examine LEADER where the structure has changed in the current programme. The LAG model has evolved under the current RDP so that most Local Action Groups are now Local Community Development Committees (LCDCs) established under the Local Government Reform Act 2014 although the Local Development Companies are responsible for the direct implementation of the programme. The regional distribution of LEADER grants and projects in Ireland shows the number of LEADER projects is largest in the north-west and south-west regions, while the funding amounts are concentrated in the west, north-west and south-west regions.

The current LEADER operates in a very different environment to the previous RDP. This has likely had an impact of the number of viable projects available to fund through LEADER. Indecon believes that the 31 actions points to reduce administrative burden outlined as part of the LEADER forum in May 2017 are welcome but monitoring of these actions should be undertaken. Our survey of LEADER Groups indicated that around 31% indicated that it was difficult or very difficult to attract good proposals. In terms of alternative funding, 77% of LEADER beneficiaries believed that they would have not been able to secure alternative funding without the LEADER support.

Overall, LEADER had a slow start in the early years of the RDP but has shown significant progress in terms of supporting projects in 2018. It is not clear at this stage if the full allocation of the LEADER funding will be spent by the end of the RDP but Indecon note that spending is permitted until the end of 2023. The LAG's have suggested as part of their annual reporting process that approximately 80% of the project budget will be allocated by the end of 2019, with the reminder to be allocated in 2020. However, it must be noted that given the nature of most LEADER projects, there is a significant time period between the approval of a LEADER project and when funding is drawn down.

### Overall conclusions

This mid-term evaluation suggests that the RDP has performed well against its various key targets. Indecon note there are some competing objectives between different measures. For example, ANC is likely to reduce the likelihood of farm abandonment and this may be in conflict with other objectives relating to environmental management. Similarly, measures which maintain existing low income farms could work against structural reforms in terms of the transfer of land to younger farmers. TAMS investment may also increase output which may have negative environment impacts. Although, this is likely in part to be offset by the specific environmental aspects of TAMS II. The 2014-2020 RDP has introduced a number of new measures that have helped address some of the structural issues in Irish agriculture. At this stage, around 57% of the overall allocation has been spent. It must also be noted that this is a mid-term evaluation and some of the overall impacts of the RDP are not fully observable yet.

### Recommendations

There are a number of wider policy issues which have developed since the start of the Programme including the recent Climate Action Plan. This is likely to have a significant impact on the next CAP Strategic Plan. A number of recommendations which aim to maximise the impact of the RDP and to highlight issues of relevance for the design of the next programme are outlined below.

| Recommendations | | | |
|---|---|---|---|
| | **Recommended Action(s)** | **Suggested Responsibility** | **Relevant Programme** |
| Protecting the rural environment | **1. Ensure priority is given to supporting environmental improvements in Irish agriculture.**<br>**2. Expand measures to support Organic Farming.**<br>**3. Ensure that there is no gap in support for any successor environmental schemes to GLAS.** | DAFM | Next |
| Improving the competitiveness of Irish farms | **4. Address the structural issues within Irish farming.**<br>**5. Continue to support EIPs.** | DAFM | Next |
| Supporting rural communities | **6. Monitor the effectiveness of new action points to reduce administrative burden on LEADER** | DRCD | Both |
| Expenditure | **7. Areas where there is likely to be underspend should be identified by the end 2019.**<br>**8. Where underspend is likely funding should be reallocated.** | DAFM | Current |
| Design and administration | **9. Use the existing infrastructure in the design of the next scheme and avoid implementation of new small-scale schemes.**<br>**10. Continue to improve the indicators to facilitate RDP evaluations.** | DAFM | Next<br><br>Both |

**1. Ensure priority is given to supporting environmental improvements in Irish agriculture**

Since the RDP was introduced, Ireland has become the second country in the world to declare a climate and biodiversity emergency. Effective climate actions require that all sectors of the economy, including agriculture, make the adjustments needed. Projects supported by the RDP as well as other initiatives within individual farms, suggest the potential for significant improvements. Measures to deliver significant progress to enhance environmental improvements should be a core focus of the next RDP. Indecon believes that targeted support to farmers in areas of natural constraints is appropriate and should continue to be part of an increased emphasis on environmental improvements. However, additional supports to enhance environmental impacts are required. In terms of climate proofing the RDP, Indecon believes that in designing the next programme the competition between schemes for land-use and opportunities to enhance climate action either through mitigation or adaption or synergies between mitigation and adaption. There may also be merit having specific GHG reduction targets (including carbon pool protection and enhancement targets) to underpin climate objectives. Indecon would also note the importance of training at a very early stage of any future environmental schemes.

**2. Expand measures to support organic farming**

Indecon's analysis suggests that Irish agriculture has a very small percentage of farms which are organic. There has however been progress made through the RDP and more progress is likely through the re-opening of the OFS in 2018. Indecon recommends that consideration is given to an expanded programme of measures to support organic farming in the next programme. Indecon however accepts that the RDP has met key targets in this area and supporting organic farming is a wider policy issue.

**3. Ensure that there is no transitional gap in agri-environment schemes during programming periods**

It is important that environment schemes have continuity and that beneficiaries maintain progress over a long period. During the 2014-2018 period, some farmers who finished their environmental scheme were not able to join GLAS as the scheme was closed to new entrants and they may not have been able to switch earlier due to commitments on land leases. In order to overcome this, in the next Programme famers should be given the option to transition into new schemes when their current scheme ends. This is consistent with Indecon's assessment that there is potential for enhanced environmental improvements and supported by RDP. In designing the next programme, the level of cut-off payments should be reviewed to incentivise additional progress.

**4. Address the structural issues within Irish farming**

The high average age of farmers in Ireland continues to represent a major structural risk to Irish farming. The current RDP supports generational renewal through TAMS II (Young Farmer's Capital Investment Grant) and through measures to support collaborative farming. Indecon recommends that the next programme increase the level of expenditure allocated to generational renewal. While Indecon notes that there are other policies outside of RDP to promote generational renewal, ways of supporting structural change in Irish farming should be continued to be given focus in the next Programme. The success of the Irish Government's agri-taxation measures to support long-term leasing is an indication of what can be achieved with appropriate initiatives. As well as enhancing competitiveness a younger and more diverse farm successor including greater gender diversity will help bring new ideas and assist in environmental benefits. This was pointed out to Indecon as part of the consultation programme.

**5. Continue to support EIPs**

European Innovation Partnerships are a welcome new feature of the 2014-2020 RDP. These have taken a number of years to become fully functional and the results will only become observable in 2019 and beyond. Indecon, however, believes that this approach should be maintained in the next programme. EIPs represents an innovative way of overcoming the various challenges facing the agriculture sector in particular in relation to climate and biodiversity issues. These groups also facilitate getting collaboration between various stakeholders and assist in developing best practice approaches to different agricultural challenges. At this stage, it is not possible to formally evaluate the effectiveness of the EIPs but such an evaluation should consider the administration costs associated with the operation of the EIPs.

**6. Monitor the effectiveness of new action points to reduce burden on LEADER**

Indecon notes that there were 31 different actions to reduce the administrative burden of LEADER introduced in 2017. Indecon recommends that monitoring of the impact of these actions is undertaken. The focus should be on facilitating the generation of additional quality projects

**7. Areas where there is likely to be underspend should be identified by end of 2019**

A forensic examination of any areas where spend is below the expected levels should be completed. Realistic evidence-based forecasts for overall Programme spend by measure should be completed by end of 2019. Indecon note that there is unlikely to be underspend in the overall RDP but certain measures within the RDP may not spend their initial allocation.

**8. Where underspend is likely funding should be reallocated**

In line with the approach taken by the managing authority to date, where underspend is likely, funding should be reallocated. The RDP is a vital support to the viability of Ireland's rural economy. While other policy initiatives are needed to assist those in rural areas not benefitting from the recovery, it is also essential that all of the RDP funds are fully utilised. There may also be merit in considering adjustments to eligible expenditure where there are concerns over whether the full allocation on measures will be spent.

Any inclusion of additional items should take account of the need to prioritise initiatives to enhance environmental objectives including climate change and biodiversity. In this context it was suggested to Indecon during the consultation programme that there is merit in including solar panels as eligible spend within TAMS. This has since occurred in the latest TAMS call (March 2019).

**9. Use the existing infrastructure in the design of the next programme and avoid implementation of small-scale schemes**

Significant investment has been made in updating IT systems during the 2014-2020 period. These updates have been very valuable but have impacted on the rollout of certain schemes. This was particularly relevant to TAMS II which was delayed due to the installation of a new system which allowed for online applications. Since this system has been operational, the application process for TAMS II has been improved significantly. Indecon recommends that the introduction of any new scheme should be cognisant of existing infrastructure that has been developed during the 2014-2020 RDP. In the next programming, the Managing Authority should avoid, where possible, introducing small schemes unless they can be managed effectively with existing administrative infrastructure. However, Indecon accepts that there may be a rationale for the introduction of new schemes to address structural weaknesses of Irish agriculture and to achieve environmental objectives.

**10. Continue to improve the indicators to facilitate RDP evaluations**

During the current programme, there have been resources invested in improving the evidence base in terms of measuring the impact of RDP support. Such evidence gathering should be continued in the next programme. This should be focused on measuring the environmental impact and other key objectives of the Programme. This will assist policymakers to ensure that scarce national and EU resources are effectively utilised. One approach that may be adopted to help improve this is to collect key information on environment and other aspects at the application stage.

## Acknowledgement and Disclaimer

We would like to take this opportunity to express our gratitude to the wide range of organisations and individuals who played an important role in, or contributed to, the completion of this evaluation. We would particularly like to thank senior officials and staff within the Department of Agriculture, Food and the Marine, and within the Department of Rural and Community Development, who provided extensive inputs and assistance throughout the course of the evaluation. In addition, we would like to thank the Irish Rural Network for their inputs.

We would also particularly like to acknowledge the inputs of the wide range of other Departments, agencies and external organisations, including members of the RDP Monitoring Committee who engaged with members of the evaluation team during the evaluation process. We also acknowledge with thanks submissions by the Irish Farmers Association, Department of Public Expenditure and Reform, Department of Transport, Tourism and Sport, Department of Culture, Heritage and the Gaeltacht, the Irish Local Development Network, Irish Rural Link, the Environment Protection Agency, Leader Partnerships and Prof. Jim Walsh of Maynooth University. Many of these individuals also attended the National Workshop that was hosted by Indecon on 31st January 2019 as part of the evaluation process and we would like to thank these individuals for their valuable contributions to the discussions during this workshop.

We are also particularly grateful to a number of senior members of staff at Teagasc, who provided access to research as well as detailed microdata from the National Farm Survey, and to staff members who participated at the National Workshop. We also acknowledge data available from the CSO. We would like to thank the very large number of beneficiaries of RDP schemes/measures who took time from their busy schedules to contribute to this evaluation, most notably those farmers, LEADER beneficiaries and LEADER Groups who responded to Indecon's survey research and provided valuable inputs and insights on their experiences with the programme and its impacts. A number of farmers and LEADER Groups also attended the National Workshop and we were very grateful for their contributions as part of these discussions.

We would also like to express our gratitude to the European Commission and the Evaluation Helpdesk and to delegates attending the Good Practice Workshop "Approaches to assess socio-economic and sector related RDP impacts in 2019", held on 24-25 October 2018 in Warsaw, Poland, which was also attended by Indecon. Indecon is very appreciative to the European Commission for sharing detailed insights on best practice. This has been reflected in the methodology used in this report. Finally, we would like to express our gratitude to our associates on this evaluation, including Professor Janet Dwyer and Dr John Powell at the CCRI in the University of Gloucestershire, who contributed valuable inputs to a number of aspects of the evaluation.

The usual disclaimer applies and the analysis in this report remains the sole responsibility of Indecon.

# 1 Introduction and Background

## 1.1 Introduction

This independent report is submitted to the Department of Agriculture, Food and the Marine by Indecon International Economic Consultants in association with the Countryside and Community Research Institute, University of Gloucestershire. The report concerns the Mid-Term Evaluation[11] of the Rural Development Programme ('RDP'), Ireland (2014-2020). This report is also the basis for the 2019 Annual Implementation Report ('AIR').

## 1.2 Background and Terms of Reference

The background and policy context for the 2019 evaluation of the RDP for Ireland is Council Regulations (EC) Nos 1305/2013 and 808/2014 which set the legal framework for evaluation of rural development support for the period 2014-2020. They state that a mid-term evaluation is required to be carried out on each Member State's programme and must be submitted to the Contracting Authority. Once all mid-term reviews are completed, a synthesis of individual Member State RDP mid-term evaluation reports will be undertaken by the Commission.

In line with the requirements of the Commission's Common Monitoring and Evaluation Framework (CMEF), and the detailed guidelines provided by the European Evaluation Network for Rural Development[12] (hereafter referred to as the 'EU Guidelines'), the overall objective of this evaluation is to achieve a holistic, strategic and robust evaluation of the RDP programme in Ireland. The subject of the evaluation is the rural policy objectives set up at the EU and national levels, which are at the core of the programme intervention logic. The objectives of rural development policy set up by Community strategic guidelines for rural development in the programming period 2014-2020 are as follows:

- Priority 1: Fostering knowledge transfer and innovation in agriculture, forestry and rural areas;
- Priority 2: Enhancing the viability/competitiveness of farms and all types of agriculture;
- Priority 3: Promoting food chain organisation and risk management in agriculture;
- Priority 4: Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry;
- Priority 5: Promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors; and
- Priority 6: Promoting social inclusion, poverty reduction and economic development in rural areas.

Each member state must design a Rural Development programme that addresses at least four of these priorities.

[11] This also relates to an enhanced 2019 Annual Implementation Report.

[12] "*Assessing RDP Achievement and Impact in 2019*" European Evaluation Network for Rural Development, European Commission's Directorate-General for Agriculture and Rural Development, August 2018.

In accordance with EU and national requirements, this mid-term evaluation:

- Examines the degree of utilisation of resources, the effectiveness and efficiency of the programming, its broader socio-economic impact and its impact on Community priorities;
- Addresses the Common Evaluation Questions (CEQs), as set out in the EU guidelines;
- Judges the degree to which the RDP has contributed to achieving the objectives set out in the national and Community strategy, particularly in terms of direct beneficiaries;
- Identifies the factors that contribute to the success or failure of programme implementation, including as regards sustainability and addressing the most important needs in the programme area;
- Assesses the efficiency of the RDP in terms of the relationship between the resources allocated in the programme and the outputs/impacts achieved as a result;
- Proposes measures to improve the quality of the programme and its implementation for the reminder of the programming period;
- Reviews programme goals and identifies best practice for future policy design;
- Presents conclusions and recommendations based upon the findings; and
- Advises on best practice regarding future evaluation of rural intervention programmes.

A rigorous methodology was applied by Indecon in completing this evaluation, details of which are set out in Section 3 of this report. This included both qualitative and quantitative analyses, and incorporated, where feasible, best practice methodologies as discussed in the EU Good Practice Workshop in Warsaw, Poland, in October 2018.[13]

## 1.3 Report Structure

The structure of this evaluation report has been informed by the EU guidance, and the remainder of this document is structured as follows:

- Section 2 examines the strategic and policy strategic context for the RDP 2014-2020. It also examines the developments in the external environment to the programme including structural changes in the Irish farming sector;
- Section 3 describes the work programme and methodological/analytical tools applied in completing this evaluation;
- Section 4 outlines the structure and composition of the RDP, and assesses the overall performance and expenditure outturns across the programme;
- Section 5 addresses the evaluation questions at overall programme level including the broader socio-economic impacts of the programme;
- Section 6 evaluated the Areas of Natural Constraint and the agri-environmental supports including BDGP and GLAS (Priority Areas 4 and 5);
- Section 7 evaluates the measures relating to Priority Areas 1, 2 and 3;
- Section 8 examines the rural development measures and the LEADER programme; and

[13]https://enrd.ec.europa.eu/evaluation/good-practice-workshops/approaches-assess-socio-economic-and-sector-related-rdp-impacts_en

- Section 9 integrates the findings from the detailed evaluations undertaken in the preceding sections to develop overall conclusions and formulate recommendations.

## 1.4 Acknowledgements and Disclaimer

We would like to take this opportunity to express our gratitude to the wide range of organisations and individuals who played an important role in, or contributed to, the completion of this evaluation. We would particularly like to thank senior officials and staff within the Department of Agriculture, Food and the Marine, and within the Department of Rural and Community Development, who provided extensive inputs and assistance throughout the course of the evaluation. In addition, we would like to thank the Irish Rural Network for their inputs.

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The usual disclaimer applies and the analysis in this report remains the sole responsibility of Indecon.

# 2 The Evaluation Context

## 2.1 Overview of Strategic and Policy Context for Programme

The Rural Development Programme (RDP) 2014-2020 was formally adopted by the European Union (EU) in May 2015. RDP is part of the Common Agricultural Policy (CAP); a common set of objectives, principles, and rules in order to co-ordinate the EU agricultural support in Member States.[14]

The Irish RDP is co-funded by the EU through the European Agricultural Fund for Rural Development (EAFRD) and national exchequer funding. Together these funds amount to over €4.2 billion for the seven-year life-span of the programme. Of the total EU funding of €2.19 billion, Department of Agriculture, Food and the Marine (DAFM) is supposed to deliver €2.033 billion, while the remaining €157 million is allocated to the Department of Rural and Community Development (DRCD) for the delivery of measures via LEADER.

The EU legislation to design RDP 2014-2020 builds on previous RDP programmes and sets out the following three objectives:

- Enhancing the competitiveness of agriculture;
- Ensuring the sustainable management of natural resources and climate management; and
- Achieving a balanced regional development of rural economies and communities.

These general objectives are given more detailed expression in six RDP priorities which are aimed to ensure that Member States adopt a common approach for designing their RDPs. These priorities include:

- 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; and
- Promoting social inclusion, poverty reduction and economic development in rural areas.

This new priority-based structure represents a move away from the "axes" framework of the previous RDP (2007-2013). So far, the RDP has been amended on six occasions, the most recent being in February 2019.[15]

[14] The CAP is structured around two complementary pillars: Pillar 1: deals with direct payments to farmers and market management measures; and Pillar 2: covers multiple rural development, environmental and climate change measures. Source: Rural Development Programme 2014-2020 Annual Implementation Report Citizens' Summary.

[15] The revised versions of RDP are available on the website of the Department of Agriculture, Food and Marine (DAFM).

The process of identifying the needs to be addressed by RDP funding involved a lengthy and complex multi-layered policy development framework incorporating programmes such as Europe 2020, Ireland's National Reform Programme, the EU Cohesion Legislative Package, the Common Strategic Framework, and Rural Development Legislation. Moreover, the programme was guided by the experience and performance of the 2007-2013 RDP and reflected the outcomes of an extensive consultation exercise between public and stakeholders conducted over multiple stages that involved:

- An open call for submissions on RDP Priorities as set out in the draft Rural Development regulation, launched in December 2012;
- A stakeholder forum in July 2013 to develop a comprehensive SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis and needs assessment to underpin the programme;
- Another open call for submissions and a stakeholder event following from the announcement of proposed RDP measures in January 2014;
- An ex-ante evaluation incorporating a Strategic Environmental Analysis of the proposed measures conducted by independent, external evaluators that included further stakeholder consultation;
- An ex-post evaluation of the 2007-2013 RDP that was undertaken by Indecon; and
- Following submission of Ireland's draft RDP in July 2014, a period of intensive discussion and development followed between DAFM and the EU Commission. The content of the RDP was agreed in April 2015, with formal adoption following in May.

The six priority areas for the RDP identify key areas for intervention, termed as focus areas. A specific priority can impact more than one focus area, and the process of selecting and designing rural development measures have been firmly based on the preparatory work that involved stakeholder engagement, ex-ante evaluation, etc., as mentioned earlier. In addressing these themes and focus areas, the Rural Development Regulation has set a number of requirements that must be considered while designing the new RDP. These include:

- At least 5% of the EU allocation must be allocated to LEADER (programmed under Priority 6);
- At least 30% of EU funding must be allocated to environmental and climate measures; and
- 6% of EU funding will be held back for allocation in 2019 following a performance review to be carried out by the Commission.

The designing of the RDP was aimed to ensure that the measures were consistent with the national and EU policy for the agricultural sector. As a result, the development of needs underlying the RDP were framed with reference to a number of key sectorial strategies and programmes such as:

- Europe 2020;
- Ireland's National Reform Programme;
- The EU Cohesion Legislative Package;
- The Common Strategic Framework; and
- Rural Development Legislation.

More specifically, in order to address the national policy, the set of opportunities and challenges in rural Ireland were identified by the Commission for the Economic Development of Rural Areas (CEDRA), while the coherence with the EU policy was aimed to be achieved by establishing the need for smart, sustainable and inclusive growth as framed in the EU 2020 strategy.

The message of smart, sustainable, and inclusive growth is also embedded in the Food Harvest 2020 (FH2020) and its successor FoodWise 2025 (FW2025).[16] These programmes identify over 400 recommendations to achieve sustainable growth over a range of cross-cutting themes. Thus, many themes that are central to the objectives and priorities of Rural Development Regulation and Ireland's RDP are consistent with national as well as EU agricultural policy, including the following common topics from FH2020 and FW2025:

- Greater competitiveness in the sector;
- Increased levels of innovation;
- Coherence with environmental goals and challenges;
- Regional development and security; and
- Growth in employment.

## 2.2 Review of Developments in External Environment to Programme

The external economic environment has important implications on the progression of development programmes such as the RDP. Overall, in addition to defining the continued relevance of RDPs, the economic performance of the country gives broader understanding of programme outcomes and its contribution through agricultural sector performance.

**General Macro-Economic Developments**

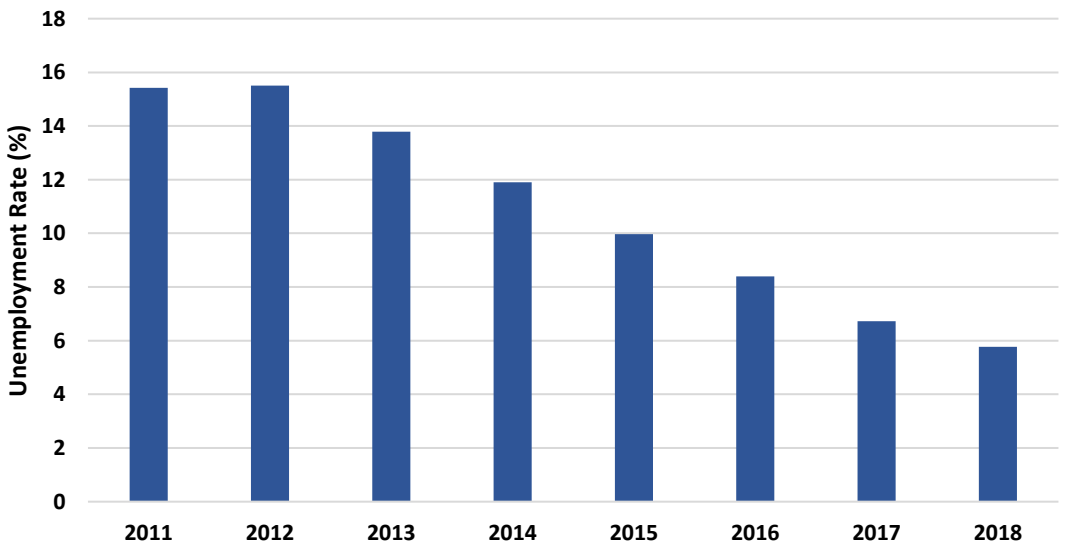
Ireland has experienced continuous economic progress since 2013 with very high Gross Domestic Product (GDP) growth rates. In 2017, GDP grew at a rate of 8.3%. This growth can be attributed to growing employment, gross domestic fixed capital formation, and an increase in private consumer and net public expenditure (see Table 2.1). The European Commission, however, has expressed concerns that the country's growth figures remain heavily influenced by the multinationals that are subject to high uncertainty. In order to obtain further insights on the Irish economy, a new measure of economic growth (Modified GNI*) has been constructed to exclude the globalisation effects which disproportionately impact the measurement of economic activity in Ireland. The new measure GNI* was constructed on the recommendations of Economic Statistics Review Group (ESRG) that was established by the Central Statistics Office (CSO) in September 2016. The statistics in Table 2.1 show that the rate of growth, represented by GNI*, was recorded at just over 3% in 2017.

[16] FH2020 is a national, industry led vision for the Irish agri-food sector up to 2020, while FW2025 is its successor that identifies over 400 recommendations to achieve sustainable growth across multiple themes.

| Table 2.1: Irish Economic Indicators, 2012 to 2018 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Annual % Volume Changes** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** |
| GDP (at current market prices) | 2.4% | 2.7% | 8.5% | 34.4% | 4.1% | 7.6% | 8.3% |
| Modified GNI* (at current market prices) | -0.14% | 8.27% | 8.56% | 8.58% | 8.95% | 3.05% | NA |
| Personal Consumption of Goods and Services | 0.70% | 1.16% | 3.21% | 4.73% | 4.20% | NA | NA |
| Net Public Expenditure on current goods and services | -2.37% | -1.06% | 3.03% | 2.70% | 5.20% | NA | NA |
| Modified Gross Domestic Fixed Capital Formation | 14.25% | 17.95% | 10.62% | 12.39% | 11.66% | 6.92% | 7.12% |
| Exports | 0.34% | -4.63% | 3.85% | 21.37% | 6.12% | 2.87% | 14.57% |
| Imports | 5.93% | -0.70% | 11.42% | 12.80% | 5.73% | 6.98% | 9.60% |
| Inflation (CPI) | 1.70% | 0.50% | 0.20% | -0.30% | 0.00% | 0.40% | 0.50% |
| Employment | -0.42% | 3.05% | 2.63% | 3.45% | 3.64% | 2.90% | 2.89% |
| ***Source: Indecon analysis of CSO* data** | | | | | | | |
| Note 1: Export and Imports include both merchandise and services<br>Note 2: Modified Gross National Income Statistics (GNI*) a new measure on the recommendation of the ESRG. | | | | | | | |

Since the economic recovery started in 2013, there has been a remarkable decline in the unemployment rate combined with positive growth rates for the number of employed individuals (See Figure 2.1). Further declines in unemployment have been evident in 2019.

**Figure 2.1: Irish Unemployment Rate and Live Register Figures, 2011-2018**

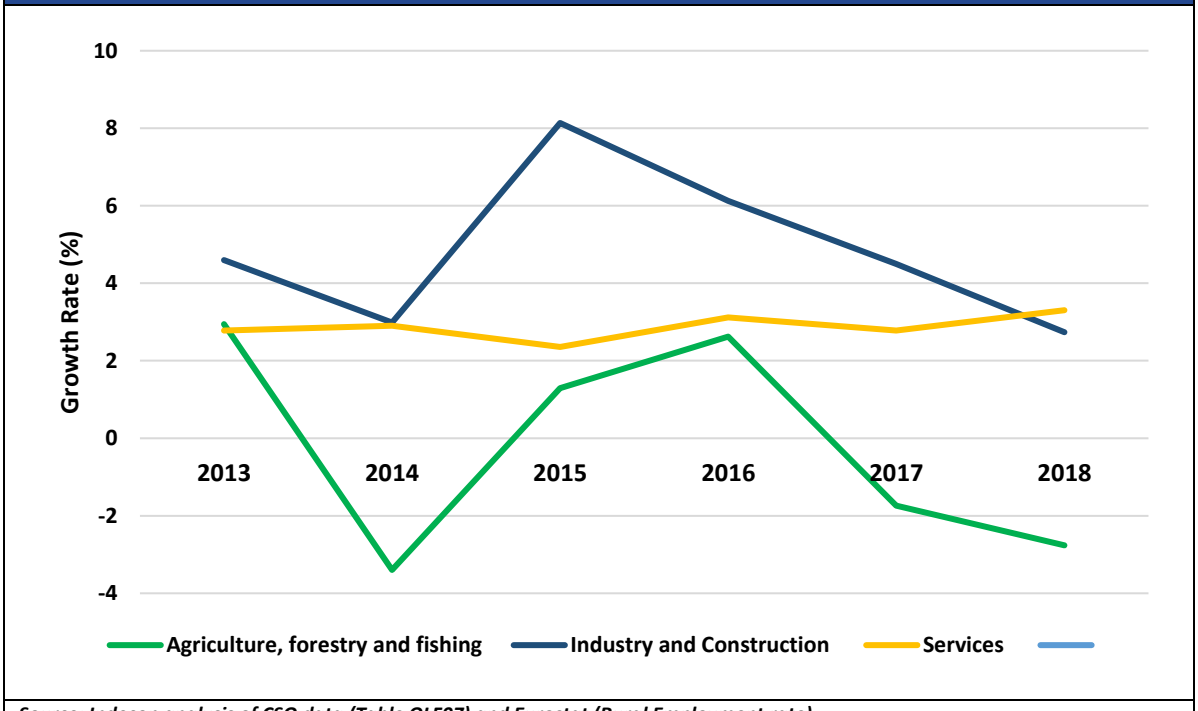



***Source: Indecon analysis of CSO data (Table MUM01 and LRM17)***

**Developments in Agricultural Sector**

Against a background of the overall growth in employment in the Irish economy the growth in employment in agriculture has been volatile and there was a small decline of approximately 2.8% in 2018 (see Figure 2.2). Agriculture however remains an important source of both direct and indirect employment, particularly in rural areas. Indecon's analysis in this report demonstrates that the RDP had a significant impact on employment in rural areas.

**Figure 2.2: Growth in Employment Rate by Broad Economic Sectors and Region, 2013-2018**



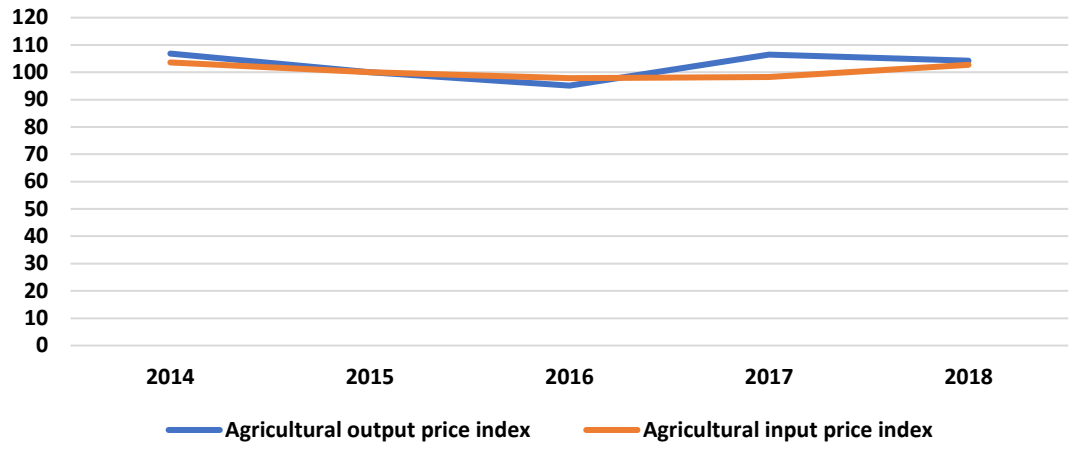

*Source: Indecon analysis of CSO data (Table QLF07) and Eurostat (Rural Employment rate)*

A detailed analysis of agricultural outcomes shows significant variance between sectors and also variance on an annual basis. However, agricultural output in 2018 was significantly higher than at the start of the RDP.

| Table 2.2: Agricultural Output, 2014-2018 (€ Million) | | | | | |
|---|---|---|---|---|---|
| **Agricultural Product/Service** | **2014** | **2015** | **2016** | **2017** | **2018** |
| Cattle | 2,012.3 | 2,361.5 | 2,288.9 | 2,361.4 | 2,261.1 |
| Pig | 471.3 | 456.3 | 465.2 | 515.6 | 457.8 |
| Sheep | 231.6 | 245.1 | 255.4 | 262.6 | 308.2 |
| Horses | 221.7 | 247.3 | 270.5 | 287.4 | 306.4 |
| Poultry | 133.3 | 142.2 | 159.5 | 163.1 | 167.3 |
| ***All Livestock*** | ***3,070.1*** | ***3,452.3*** | ***3,439.6*** | ***3,590.1*** | ***3,500.8*** |
| Milk | 2,093.1 | 1,881.1 | 1,790.8 | 2,591.7 | 2,549.1 |
| Livestock Product (Excluding Milk) | 58.2 | 68.3 | 67.0 | 74.6 | 77.2 |
| ***All Livestock Products*** | ***2,151.3*** | ***1,949.4*** | ***1,857.8*** | ***2,666.4*** | ***2,626.3*** |
| Barley | 196.3 | 174.0 | 146.9 | 150.1 | .. |
| Wheat | 69.4 | 63.3 | 63.1 | 65.9 | .. |
| Oats | 14.8 | 25.5 | 20.8 | 21.3 | .. |
| Potatoes | 89.2 | 116.6 | 135.3 | 126.5 | .. |
| Mushroom | 133.2 | 137.0 | 121.7 | 118.2 | .. |
| Other Fresh Vegetables | 93.9 | 100.0 | 106.3 | 103.4 | .. |
| Fresh Fruits | 49.9 | 50.8 | 51.1 | 54.4 | .. |
| Other Crops | 59.0 | 65.2 | 72.1 | 79.2 | .. |
| Forage Plants | 1,041.8 | 1,004.0 | 1,049.4 | 1,081.0 | 1,101.4 |
| ***Crops*** | ***1,747.5*** | ***1,736.2*** | ***1,766.7*** | ***1,799.9*** | ***1,850.6*** |
| ***Agricultural Output at Basic Prices*** | ***7,293.9*** | ***7,403.0*** | ***7,432.7*** | ***8,443.7*** | ***8,368.8*** |
| ***Gross Value Added at Basic Prices*** | ***2,174.1*** | ***2,465.0*** | ***2,357.9*** | ***3,191.1*** | ***2,609.0*** |
| ***Net Value Added at Basic Prices*** | ***1,411.1*** | ***1,660.1*** | ***1,548.9*** | ***2,353.2*** | ***1,771.1*** |
| ***Source: Indecon analysis of CSO Data (Table AEA01)*** | | | | | |

Data on input prices in agricultural sector shows some divergence in input and output prices.

**Figure 2.3: Agricultural Input-Output Price Index, 2014-2018**




***Source: Indecon analysis of CSO data (Table AHA04)***

*Family Farm Income and Employment*

The average family farm income in Ireland improved in 2017 following the low levels of farm income recorded in 2016 but fell again in 2018. This reflects the volatility of incomes in the sector which is an issue both for the RDP and for other EU and national policies. One of the features of Irish agriculture is its dependence on export markets. This suggests that Brexit has the potential to significantly negatively impact on Irish agriculture. The breakdown of farm income by activity (see Table 2.3) reveals that the increase in average incomes in 2017 was primarily driven from dairy farming and mixed livestock. In 2018, dairy suffered the highest decline in incomes albeit from a high base.

**Table 2.3: Average Family Farm Income, 2014-2018**

| Year | Dairying | Cattle Rearing | Cattle Other | Sheep | Tillage | Mixed Livestock |
|---|---|---|---|---|---|---|
| 2014 | €67,598 | €10,369 | €13,321 | €15,065 | €28,995 | €56,183 |
| 2015 | €62,141 | €12,660 | €16,319 | €16,137 | €34,303 | €37,243 |
| 2016 | €52,155 | €12,516 | €16,853 | €15,708 | €30,840 | €34,964 |
| 2017 | €88,829 | €10,642 | €16,115 | €17,357 | €36,048 | €65,076 |
| 2018 | €61,273 | €8,318 | €14,408 | €13,769 | €42,678 | €56,667 |

***Source: Teagasc National Farm Survey (2014-2018)***

The increase in dairy income in 2017 was driven by strong price recovery in the global market with milk prices increasing by 32% from 2016, improving throughout the season (See Table 2.4). Moreover, the increase in production (€/ha) was noted as 35%, increasing from €3,153/ha in 2016 to €4,280/ha

in 2017. This further boosted dairy income, increasing by almost 65% to €86,069 in 2017. However, 2018 witnessed a decrease in gross output and milk prices. This coupled with the increase in direct costs reduced the gross margins from €2856/ha to €2,062/ha leading to overall decline in the sector.

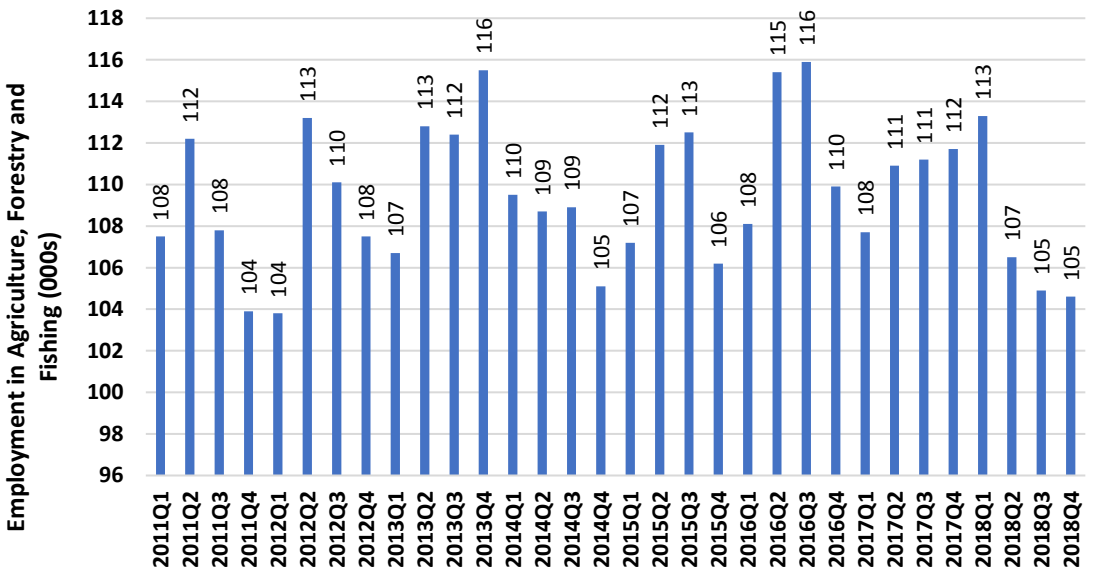
**Table 2.4: Dairy Enterprise Indicators, 2014-2018**

| Indicators | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Production (litres/ha) | 10,686 | 11,108 | 11,094 | 11,279 | 11,415 |
| Milk Price (cent/litre) | 39.5 | 30.3 | 27.9 | 36.9 | 36 |
| Gross Output (€/ha) | 4,153 | 3,614 | 3,153 | 4,280 | 3,656 |
| Direct Cost (€/ha) | 1,575 | 1,426 | 1,359 | 1,424 | 1,594 |
| Gross Margin (€/ha) | 2,578 | 2,187 | 1,794 | 2,856 | 2,062 |

***Source: Teagasc National Farm Survey (2014-2018)***

The CSO's quarterly employment data on agriculture, forestry and fishing (NACE01-03) shows that total employment declined in the last three quarters of 2018, from 113,000 down to 105,000, which equates to an 8% decline.

**Figure 2.4: Employment in the Agriculture, Forestry and Fishing Sector (2011-2018)**




***Source: Indecon analysis of CSO data (Table QLF03)***

As a share of total employment, agriculture's share has declined in recent years (see Table 2.5). In 2018, agriculture accounted for 4.8% of employment. Agriculture, however, has wider knock-on employment impacts throughout the Irish economy. Development, employment and economic activity in rural areas is an issue which will require a particular focus in the next RDP as well as in other national and EU policy responses.

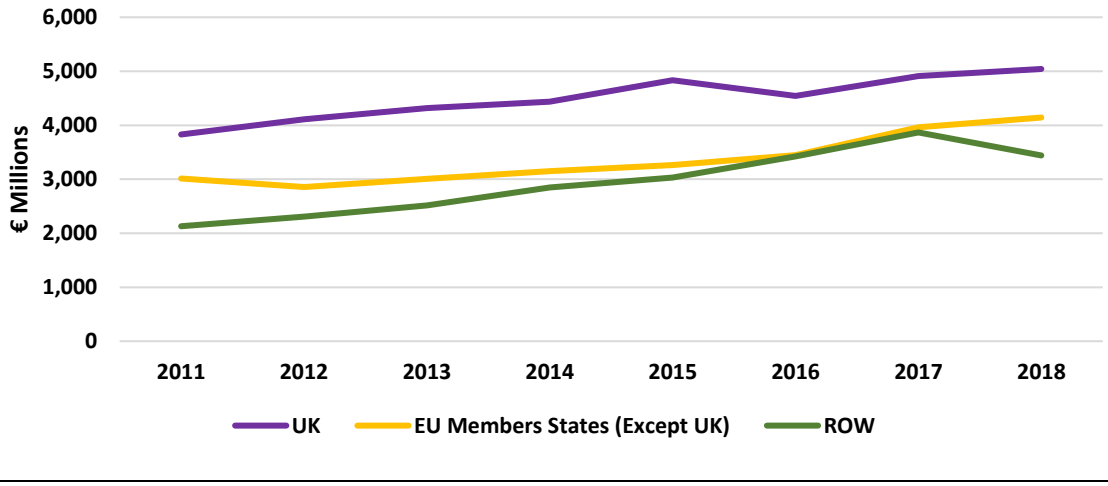
| Table 2.5: Agri-Sector Employment, 2013-2018 ('000s) | | | |
|---|---|---|---|
| **Year** | **Agri. Employment** | **Employment (All Sectors)** | **Proportion** |
| 2011 | 107.85 | 1888.475 | 5.7% |
| 2012 | 108.65 | 1880.45 | 5.8% |
| 2013 | 111.85 | 1937.775 | 5.8% |
| 2014 | 108.05 | 1988.775 | 5.4% |
| 2015 | 109.45 | 2057.35 | 5.3% |
| 2016 | 112.325 | 2132.25 | 5.3% |
| 2017 | 110.375 | 2194.15 | 5.0% |
| 2018 | 107.325 | 2257.55 | 4.8% |
| ***Source: Indecon analysis of CSO data (Table QLF03)*** | | | |

One of the features of Irish agriculture is the dependence on export markets. This suggests that Brexit has the potential to significantly negatively impact on Irish agriculture. The disaggregated data on exports in Table 2.6, shows that the main export items comprised meat and meat preparation, dairy products and bird eggs, and miscellaneous edible products and preparations, having relative share of over 31%, 21%, and 15% respectively. Amongst these, the highest growth rate was recorded for dairy products in 2016/17. This reflects increased global prices and production volumes. Exports of meat and meat preparations increased by 2% over 2016/17.

| Table 2.6: Summary of Exports from the Agri-Food Sector, 2013 to 2018 (€ Millions) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sub-sector** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | ***% Change 2017 to 2018*** | ***% Share of Agri-Food Exports in 2018*** |
| Live animals except fish etc. | 432.1 | 405.1 | 430.5 | 340.0 | 447.8 | 431.7 | *-3.6* | *3.4* |
| Meat and meat preparations | 3,005.4 | 3,331.3 | 3,499.8 | 3,596.0 | 3,845.5 | 3,929.1 | *2.2* | *31.1* |
| Dairy products and bird eggs | 1,882.3 | 1,835.0 | 1,786.8 | 1,759.7 | 2,393.0 | 2,640.5 | *10.3* | *20.9* |
| Fish, crustaceans, molluscs and preparations thereof | 480.6 | 531.4 | 567.6 | 554.7 | 616.8 | 577.2 | *-6.4* | *4.6* |
| Cereals and cereal preparations | 295.6 | 350.2 | 402.9 | 381.4 | 418.5 | 434.6 | *3.9* | *3.4* |
| Vegetables and fruit | 240.0 | 260.4 | 286.6 | 278.4 | 299.3 | 319.3 | *6.7* | *2.5* |
| Sugar, sugar preparations and honey | 115.7 | 107.0 | 162.4 | 212.2 | 156.9 | 146.2 | *-6.9* | *1.2* |
| Coffee, tea, cocoa, spices and manufactures thereof | 375.7 | 354.3 | 372.4 | 374.2 | 374.0 | 383.0 | *2.4* | *3.0* |
| Feeding stuffs for animals, excluding un-milled cereals | 249.6 | 239.5 | 295.8 | 283.1 | 320.3 | 345.1 | *7.8* | *2.7* |
| Miscellaneous edible products and preparations | 1,656.8 | 1,936.3 | 2,073.0 | 2,316.8 | 2,502.4 | 1,970.4 | *-21.3* | *15.6* |
| Beverages | 1,090.4 | 1,075.6 | 1,240.1 | 1,297.9 | 1,357.8 | 1,436.8 | *5.8* | *11.4* |
| Animal and vegetable oils and fats, processed, and waxes | 2.0 | 2.4 | 1.8 | 1.9 | 0.8 | 1.6 | *113.0* | *0.0* |
| ***Total Agri-Food*** | **9,837.1** | **10,437.2** | **11,133.1** | **11,410.0** | **12,741.3** | **12,624.0** | **-0.9** | **100.0** |
| ***Source: Indecon analysis of CSO data (Table TSA09)*** | | | | | | | | |

In the context of Brexit, it is of significance that Irish agri-food exports were sold primarily to the UK, followed by other EU Member States. On average over the 2013 to 2018 period, the UK accounted for 42% of agri-good exports, while the rest of the EU and the rest of the world accounted for 31% and 27% respectively, as Figure 2.5 demonstrates.

**Figure 2.5: Irish Agri Food Exports by Region (2013-2018)**




*Source: Indecon analysis of CSO data (Table TSA09)*

## 2.3 Summary

- The Rural Development Programme 2014-2020 for Ireland is part of the Common Agricultural Policy: a common set of objectives, principles, and rules in order to co-ordinate the EU agricultural support in Member States.
- The seven-year span of the programme has around €4.2 billion of funding, of which €2.19 billion is provided from EU resources. The 2014-2020 RDP is consistent with the EU strategic guidelines for rural development under EU2020. It also reflected a number of national policy objectives in the area of rural development as well as the development of the farming and wider agri-food sectors. These include strategies such as Food Harvest 2020 (FH2020) and Foodwise 2025 (FW2025).
- The economic situation in Ireland has improved significantly since the commencement of the Programme and there was a sustained increase in employment and increases in income. The agricultural sector however experienced more volatility. The average family farm income in Ireland improved in 2017 following the low levels of farm income recorded in 2016 but fell again in 2018. This reflects the volatility of incomes in the sector which is an issue both for the RDP and for other EU and national policies. One of the features of Irish agriculture is its dependence on export markets. This suggests that Brexit has the potential to significantly negatively impact on Irish agriculture.
- One of the features of Irish agriculture is the dependence on export markets. This suggests that Brexit has the potential to significantly negatively impact on Irish agriculture.

# 3 Methodological Approach

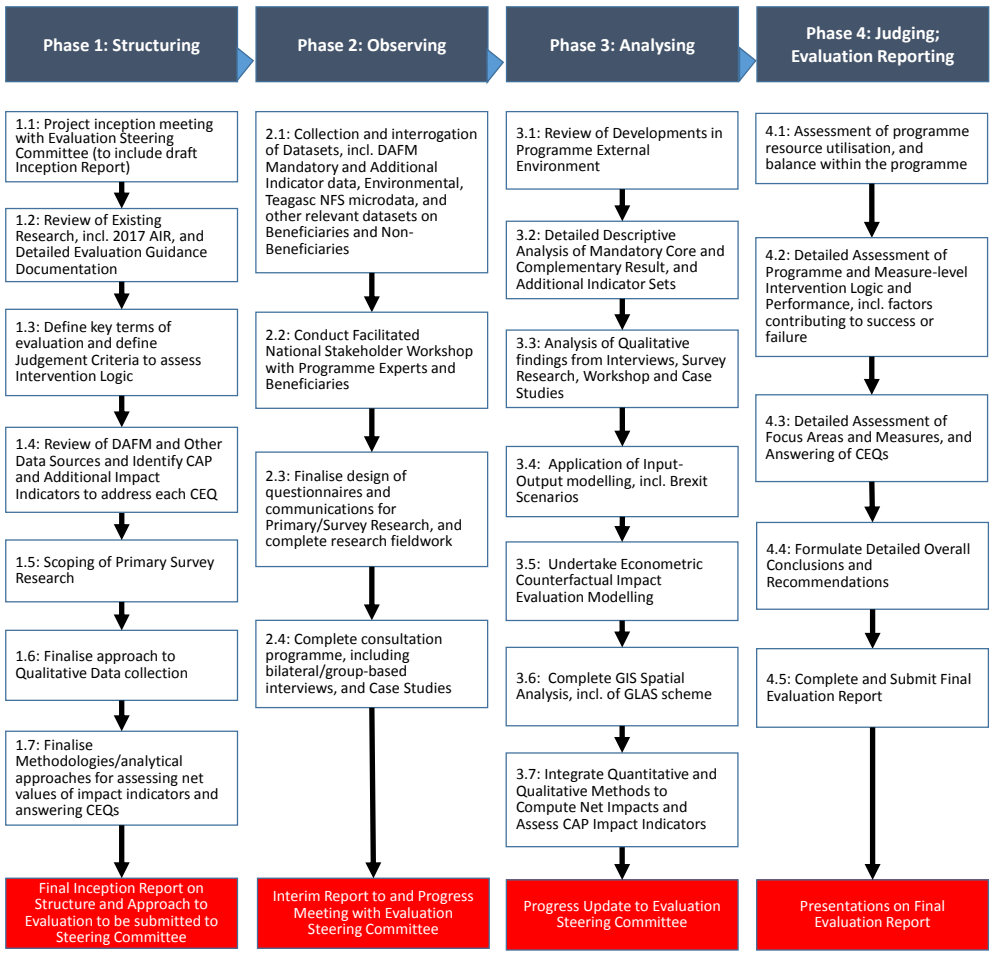
## 3.1 Introduction

This section describes the methodological approach applied by Indecon to the completion of the mid-term evaluation. In particular, it sets out the quantitative and qualitative tools applied in the analysis and assessment of programme performance and effectiveness. The approach describes how the mid-term evaluation addresses the common evaluation questions and progress against the targets set. As this represents a mid-term evaluation, it is likely that the impact of many of the measures will only be evident over time.

## 3.2 Overview of Methodological Approach to Evaluation

Reflecting the detailed terms of reference, in addition to best practice and the EC/ENRD guidance,[17] a four-phased methodological approach was applied in the completion of this evaluation. A schematic overview of the work programme and methodological tools applied is provided in the figure below. Specific components of the approach are elaborated upon overleaf.

**Figure 3.1: Schematic Description of Methodological Approach to Evaluation**




***Source: Indecon***

[17] *Guidelines – Assessing RDP Achievements and Impacts in 2019*', European Evaluation Helpdesk for Rural Development, Op. Cit., Part I-IV

A feature of the 2014-2020 RDP was the inclusion in the programme of measures and associated schemes that operated in various forms during previous programmes as well as under the 2014-2020 programme. This relates in particular to measures and related schemes/supports which operated in the following areas:

- On-farm investment supports (TAMS II);
- Support to farms operating in areas of national constraint (ANC); and
- Agri-environmental supports (GLAS).

In evaluating the effectiveness of such measures, a challenge relates to the identification and interpretation of outcomes in terms of results and impacts that may originate from activities and outputs occurring during previous programming periods. It is therefore useful to consider the cumulative impacts of such measures over successive programmes. In this evaluation, Indecon builds on and improves the analytical framework that was developed as part of the ex-post evaluation of the 2007-2013 programme.

In line with European Commission guidance,[18] Indecon has attempted to use a range of advanced and rigorous methods to empirically evaluate the impact of different RDP measures and submeasures.

We have applied a 'triangulation' of methodologies, with the objectives of cross-confirming qualitative and quantitative measures and where possible have evaluated the counterfactual impacts. The fact that such a large percentage of farms in Ireland have received funding from the RDP or other schemes, however, makes counterfactual analysis particularly difficult.

Given the diversity of the RDP programme and the data constraints which exist, our methodological approach has involved the following seven methodologies to evaluate the 2014-2020 RDP:[19]

1. **Consultation Programme;**
2. **New Survey Evidence;**
3. **Detailed Analysis of Indicator Data (2014-2018);**
4. **Case Studies;**
5. **Bio-Economy and Regional Input-Output Models;**
6. **Econometric Counterfactual Models; and**
7. **GIS-based Spatial Analysis.**

Each of the above methodologies is discussed briefly below.

[18] *Guidelines – Assessing RDP Achievements and Impacts in 2019*', European Evaluation Helpdesk for Rural Development, Op. Cit., Part I-IV

[19] We evaluate the RDP for the years 2014-2017 using the National Farm Survey (NFS) and for 2014-2018 using other data sources.

## 3.3 Consultation Programme

A programme of consultation with a range of stakeholders was completed as part of the work programme for the mid-term evaluation. This included:

- Face-to-face discussions and ongoing interaction with senior officials within the Irish Department of Agriculture, Food and the Marine (DAFM), and the Department of Rural and Community Development (DRCD), which oversaw the LEADER programme. These discussions 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.
- Engagement with **external stakeholder organisations and programme beneficiary representative groups**, including members of the RDP Monitoring Committee, inviting each organisation/group to provide a formal written submission to the evaluation team and to meet with the team. Indecon received a number of very valuable formal submissions to the evaluation.
- A **National Stakeholder Workshop:** This entailed a focus group workshop involving participation from a diverse of beneficiaries across the priority areas, as well as relevant agencies and other national stakeholder groups. A total of 53 individuals attended the workshop, which was held at the Radisson Blu Hotel, Athlone, on 31st January 2019. The workshop addressed the following themes:
    - Modernising Irish Farms – 'How best can the modernisation of Irish farms be achieved?'
    - Agri-Environmental and Areas of Natural constraint supports – 'How has Irish farms' impact on the environment changed over the last decade?'
    - Supporting the Broader Rural Economy – 'Do you feel that key principles of LEADER (supporting bottom up initiatives to promote rural life) were met in practice during the 2014-2018 period?'

## 3.4 New Survey Evidence

New primary survey research was also undertaken as part of the evaluation. This research had the following objectives:

- To facilitate individual beneficiaries – including farmers and LEADER beneficiaries – to input to the evaluation; and
- To assist the evaluation team to address the Common Evaluation Questions and Programme-specific Evaluation Questions.

Five streams of primary research were completed, focussing in each case on the following target/programme beneficiary groups:

- Measure 1 Knowledge Transfer: Survey of beneficiaries who were part of Knowledge Transfer Groups;
- Measure 4: Survey of beneficiaries under Targeted Agricultural Modernisation Scheme II;
- Measure 13: Survey of beneficiaries under ANC Scheme;
- Measure 19 LEADER: Survey of LEADER Groups (LAGs); and
- Measure 19 LEADER: Survey of LEADER Beneficiaries.

A total of 4,610 separate survey questionnaires were issued across the five survey streams. We received an impressive total of 1,371 responses were received across the five survey streams, implying an overall effective response rate of 29.7%. This provides an important new source of evidence from individuals most impacted by the Programme and the inputs received were where feasible tested using other methods. The sample detail and response achieved for each survey stream are described in the table below. It is notable in relation to survey streams 1 to 3 (RDP farmer beneficiaries) that the individual survey response rates were also very high, ranging between 26.2% and 31.8%. A response rate of 52% was attained in respect of the survey of LEADER Local Action Groups. A detailed survey of a representative sample of LEADER beneficiaries was also undertaken which resulted in a survey response rate of 36.2%.

**Table 3.1: Primary Research – Details of Response Rates Achieved**

| Survey Stream | No. of Responses Achieved | Total Target Sample Contacted | *Implied Response Rate relative to Sample Contacted - %* |
|---|---|---|---|
| (1) Knowledge Transfer Groups | 189 | 717 | *26.2%* |
| (2) Targeted Agricultural Modernisation Scheme II (TAMS II) Survey | 441 | 1,386 | *31.8%* |
| (3) Areas of Natural Constraint (ANC) | 459 | 1,754 | *26.4%* |
| (4) Survey of LEADER Local Action Groups | 32 | 62 | *51.6%* |
| (5) Survey of LEADER beneficiaries | 250 | 691 | *36.2%* |
| **Total Responses across 5 Survey Streams** | **1,371** | **4,610** | ***29.7%*** |

***Source: Indecon analysis***

Indecon was able to stratify our sample for each of the measures to account for regional characteristics and for different types of measure take-up. For example, we were able to compile a sample that had adequate coverage of each of the seven TAMS II supports. Similarly, we were able to design a sample that accounted for the different types of knowledge transfer groups. In relation to possible bias in the response received to the primary/survey research, as noted above, the survey results are based on a large number of responses and this is likely to remove any small sample bias. There is always a possibility of potential bias among respondents and Indecon would caution against using survey evidence as the only means to examine the impact of the programme.

One of the main reasons to undertake these five surveys is to assist us in answering the key evaluation questions as there are a number of data gaps that exist at present. It is unlikely that these gaps will be filled without new primary research as there are limitations on what existing data sources (such as the NFS) can accurately capture in a survey. New primary survey research enables us to examine the various measures in more detail and consider whether they have achieved their intended objectives. Primary research also enables a detailed examination of the wider impacts of the RDP on the ultimate RDP beneficiaries. We have also included the results of a survey on GLAS which has been undertaken as part of the ongoing evaluation of GLAS.[20] Indecon would however caution against only relying on survey evidence and we have also used a range of quantitative and other methods.

## 3.5 Detailed Analysis of Indicator Data

A range of EU common and other indicators were formulated within the RDP for Ireland (2014-2020). These include focus area indicators and measure-level output, result and impact indicators. There were also a number of target indicators used to examine the impact of the RDP. It was a requirement that these indicators be reported upon on annual basis as part of the ongoing reporting requirements set down by the European Commission. These indicator updates are included in the Annual Implementation Report (AIR) that is submitted to the Commission. We have also examined the CAP impact indicators.

It is important to note the structure of the RDP in the context of how the indicators are constructed. The RDP is structured into a number of different measures. Many of these measures have impacts across a number of different focus areas. Improvements have been made to indicator data, however, Indecon recommends ongoing enhancement of indicators. This is important in identifying progress on the Programme and also can assist in measuring effectiveness.

## 3.6 Case Studies

A series of case studies was also completed, with the objectives of complementing the evidence assembled from the other research methods. These case studies also looked at certain key issues that would be important in the future development of Irish agriculture. Our case study analysis has been used to highlight issues that are relevant to the context within with the RDP operates.

## 3.7 Bio-Economy and Regional Input-Output Models

One of the objectives of the evaluation was to consider the wider economic and social impacts at programme level. The impact of expenditures such as those supported under the 2014-2020 RDP was assessed using formal economic Input-Output methodology, which provides an approach to identify the consequences of expenditures for production and added value throughout the whole economy. The main value of the use of an Input-Output model is to evaluate the following:

- *Multiplier Impacts of Irish Agriculture*: To identify and quantify the interlinkages between agriculture sector and other sectors in the broader Irish economy;
- *RDP Expenditure Impact*: To facilitate a high-level assessment of the direct financial impact of RDP expenditures on the overall Irish economy; and

[20] This evaluation is being undertaken by ADAS and includes a number of different outputs which are considered in our review of GLAS in section 6.2

- *Output Additivity Impact*: To enable an indicative assessment of the overall impact on the economy of changes in rural output as a result of RDP-related expenditures.

As part of this evaluation, Indecon utilised a detailed Bio-Economy Input-Output Model of the Irish economy, which assisted in evaluating overall, economy-wide impacts of expenditures under the 2014-2020 programme. This breaks out the traditional input-output model into more detailed sectors that allows for identification of impacts relating to RDP expenditure. We also included a Regional Input-Output Model[21] which was linked with new primary research which asked farmers to indicate the proportion of their spending occurs within a 35km radius of their farm. This enabled us to consider the regional and rural development impacts of this expenditure.

## 3.8 Econometric Counterfactual Impact Evaluation ('CIE')

To rigorously assess the impacts of a programme measure, or group of related measures, it is necessary to consider what would have likely occurred in the absence of the supports provided (i.e., the 'counterfactual'). As part of this evaluation, Indecon completed a formal econometric counterfactual impact evaluation of a number of measures under the 2014-2020 RDP, using best practice econometric techniques. We note that for certain smaller RDP measures, the sample size in the National Farm Survey is not sufficient to undertake rigorous counterfactual modelling and Indecon has evaluated such measures using a range of approaches including qualitative analysis.

Our approach applied econometric models to study the impacts of the various forms of support under the 2014-2020 RDP. It is likely that some of the measures will take a number of years before the impact is observable. This caveat should be considered in all of the counterfactual impact analysis presented in this report. The most recent observation period in the NFS is 2017 and thus we only have a small number of years to identify impacts as a direct result of the 2014-2020 RDP intervention. However, these approaches can be applied in subsequent evaluations of RDP measures as the impact emerges.

The counterfactual analysis in this evaluation uses the National Farm Survey (NFS) survey, which is an annual longitudinal representative sample survey of farms in Ireland, with 1000+ farms sampled over the period 2000-2017. The approach utilised the most up-to-date and comprehensive data available on farms in Ireland. The data was made available to Indecon for the purposes of this evaluation by Teagasc, and with the assistance of the Department of Agriculture, Food and the Marine. The NFS does not have explicit information on RDP measures so a matching exercise based on herd number was undertaken by Teagasc for the purposes of this RDP evaluation using payment data on RDP beneficiaries from DAFM.

The new econometric modelling involved the use of a number of models to study the impacts of supports on output and productivity. This approach was consistent with the approach that Indecon undertook for the 2007-2013 Ex-Post Evaluation of the RDP.

Our econometric approach focused on adjusting standard regression approaches for unobserved factors. Our approach also made use of a number of types of different regression models. Firstly, we used a panel data model incorporating dummy variables for the RDP supports ('treatments'). This is the fixed effects approach which controls for any time invariant factors that be influencing both the outcome and treatment variables. However, there are limitations with this approach as it cannot

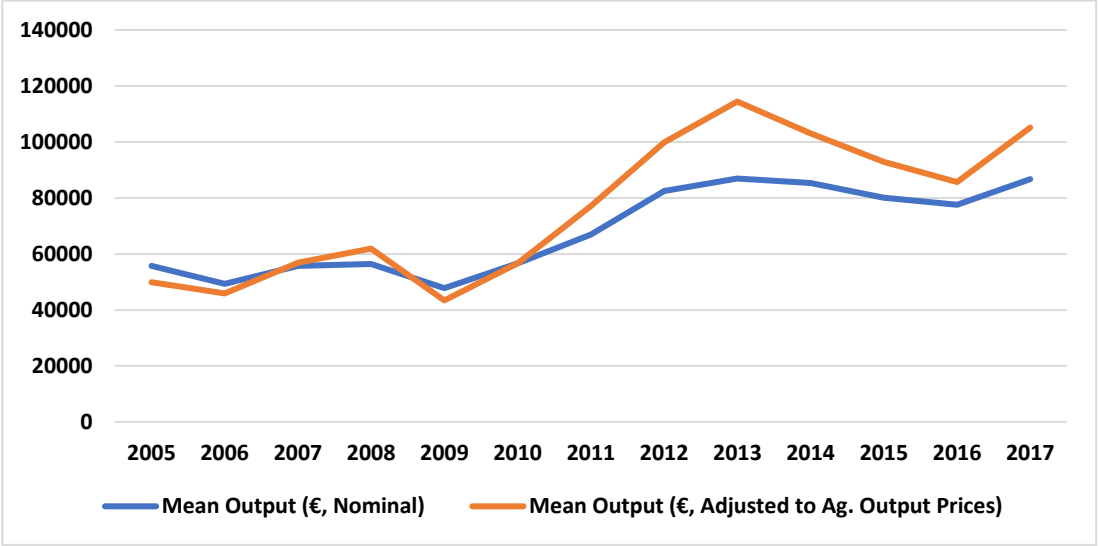
[21] We have included a two region I-O model (NUTS 2) but we note that a regional model at NUTS 3 may be more appropriate. No such model for Ireland currently exists.

account for the impact of observed characteristics that vary overtime. For this reason, the typical interpretation of the fixed effects models is more one of correlation rather than causation. For this reason, we then estimated counterfactual models that explicitly accounted for any selection bias. The main approaches used were a Regression Adjustment (RA) approach, and a Propensity Score Matching (PSM) approach. These approaches adjust the statistical analysis to adjust for observed different between the treated and non-treated groups.

The key findings for the impact of RDP grants on measures such as farm output, farm productivity, and associated CAP impact indicators will be explained in later sections of this report. The methods are in accordance with the recommendations of the guidance document[22] on rural development by European Evaluation Helpdesk.

It is important to examine the background data that underpins any counterfactual impact model. Descriptive statistics and trends of the outcome and grant variables for the operational period of the RDP, as captured by the NFS data are shown below. The NFS provides a panel data with circa 900 farms surveyed over 18 years. Overall, the data has over 19,000 observations and provides comprehensive measures of farm output and agriculture at micro-level. Figure 3.2 graphs the weighted mean agricultural output from 2000 to 2017, where a noticeable spike is seen after 2009.

**Figure 3.2: Mean Agricultural Output (2000-2017)**

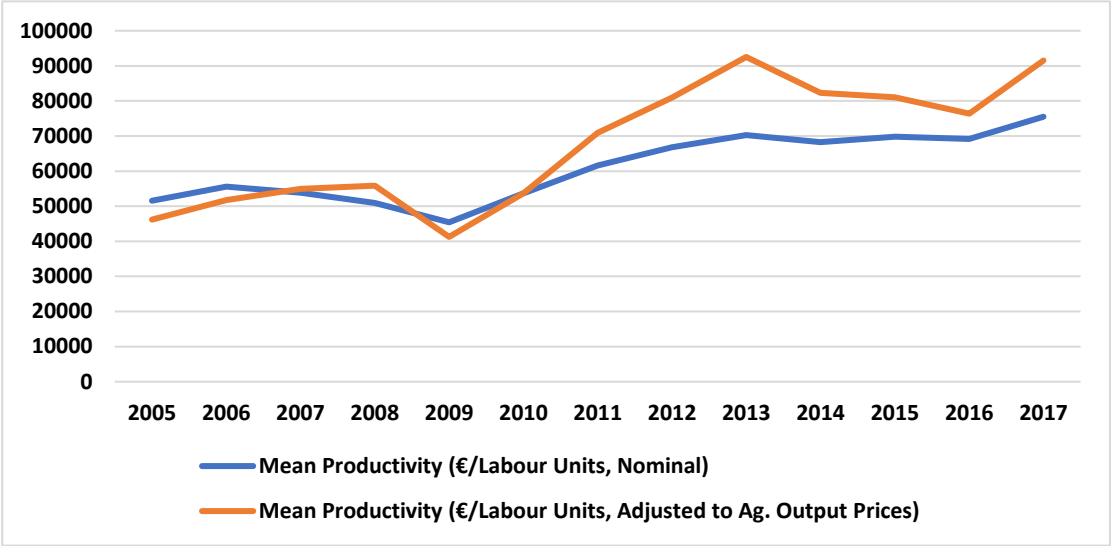



***Note: The adjusted figures are in 2010 prices.***
***Source: Indecon Analysis of NFS data***

[22] https://enrd.ec.europa.eu/evaluation/publications/assessing-rdp-achievements-and-impacts-2019_en

The 2011 NFS report suggests that the increase in farm output post 2009 was driven by strong beef prices that increased the cattle rearing farm income by 48%. Furthermore, sheep prices were also at higher level which resulted in 13% increase in the output. Lastly, favourable conditions prevailed in the grain markets despite the cost inflation. A similar pattern is found for the trend of weighted average agricultural productivity, as shown below; however, the level of productivity is higher before 2008 and lower after 2012 as compared to the mean overall production.

**Figure 3.3: Mean Agricultural Productivity (2000-2017)**




***Note: The adjusted figures are in 2010 prices.***
***Source: Indecon Analysis of NFS data***

The key agricultural payments disbursed as part of RDP 2014-2020 are presented in Table 3.2. The number of beneficiaries for Organic Farming and Knowledge Transfer are very low in NFS data, an unsurprising result as it has only been 2-3 years since the scheme started operations.

**Table 3.2: RDP Payments Captured in NFS Data (2000-2017)**

| RDP Payment | Measure | Start Year | Total Periods of Operation | Total Beneficiaries reported in NFS Data (N=19,317) | % of Total Sample |
|---|---|---|---|---|---|
| Areas of Natural Constraints (Formerly Less Favoured Area/Disadvantaged Areas) | M13 | 2001 | 17 | 12,988 | 67.24% |
| REPS and AEOS (Transition Grant) | M10 | 2000 | 18 | 6,443 | 33.35% |
| All Capital Investment Grants | M4 | 2000 | 18 | 304 | 1.57% |
| Organic Farming Scheme | M11 | 2016 | 2 | 38 | 0.20% |
| Knowledge Transfer | M1 | 2017 | 1 | 112 | 0.60% |
| TAMS II | M4 | 2016 | 3 | 62 | 0.34% |
| GLAS | M10 | 2015 | 3 | 641 | 3.32% |

***Source: Indecon Analysis of NFS data***

## 3.9 GIS Spatial Analysis

As part of our evaluation, Indecon also examined the spatial distribution of some RDP measures. Many of the measures had significantly higher take-up in the western half of the country. The spatial analysis also considered concentration of take-up of multiple RDP measures in different areas. This analysis is useful to show the clear regional variations in the take-up of different measures. It also shows the natural constraints that are experienced by farmer beneficiaries.

## 3.10 Summary

- In line with European Commission guidance, Indecon has used a range of advanced and rigorous methods to empirically evaluate the impact of the 2014-2020 RDP Ireland. We have applied a 'triangulation' of methodologies, with the objective of cross-confirming qualitative and quantitative measures and, where possible, we have evaluated counterfactual impacts. It is also worth noting that this is an interim evaluation and many impacts are not yet observable and the full results will only be evident over time.
- Our approach has involved the application of the following methodologies:
  - **Bio-Economy and Regional Input-Output Models;**
  - **Econometric Counterfactual Models;**
  - **Spatial Analysis;**
  - **Consultation Programme;**
  - **Case Studies;**
  - **New Survey Evidence; and**
  - **Analysis of Indicator Data.**
- Given the need to ensure the best use of scarce EU and national resources, using a range of methodologies to examine the impact of the Programme is appropriate.

# 4 Description of Programme, Measures and Budget

## 4.1 Introduction

This section discusses the composition and structure of the RDP 2014-2020 programme in Ireland, before presenting the level of funding across different priorities and associated measures.

## 4.2 Programme Implementation and Composition

Ireland's RDP primarily contributes to three objectives set out in Rural Development Regulation No 1305/2013. These are as follows:

- Enhancing the competitiveness of agriculture;
- Ensuring the sustainable management of natural resources and climate management; and
- Achieving a balanced regional development of rural economies and communities.

These general long-term objectives are built on the success of previous RDP programmes and they can be detailed further into six major priorities, listed below:[23]

- **Priority 1 (P1): Fostering knowledge transfer and innovation in agriculture, forestry and rural areas**

The outcome of the SWOT and public consultation highlighted support for knowledge transfer that can be delivered by a variety of mechanisms. However, the challenge was to develop a balanced and integrated package of knowledge transfers to suit the RDP 2014-2020. The suggested approaches which emerged from SWOT and consultations include: first, development of knowledge transfer groups; and second, targeted training and effective mechanisms for better integration of research into farm practice.

- **Priority 2 (P2): Enhancing the viability/competitiveness of farms and all types of agriculture**

The importance for farm, business development, and farm diversification was recognised under P2. Furthermore, the support for farmers in Less Favoured Areas (LFAs)/Areas of Natural Constraint (ANC) is expected to have important positive impact on family farm incomes, farm viability, and competitiveness of agriculture.

- **Priority 3 (P3): Promoting food chain organisation and risk management in agriculture**

The emphasis is to support the organisation of artisan and small-scale food production, especially in the areas of added value production, participation in quality schemes, and strengthening of producers' position in the market that facilitates cooperation and collaboration.

[23] Ireland's Rural Development Programme 2014-2020 (July 2014). Retrieved from: https://www.agriculture.gov.ie/media/migration/agarchive/ruralenvironment/preparatoryworkfortherdp2014-2020/RDPFinaldraft03072014.pdf

- **Priority 4 (P4): Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry**

The public consultation and SWOT analysis highlighted the need to have focus on the Agri-environment measures and target Natura 2000 sites and water quality. The idea is to meet Ireland's RDP objectives and also the EU 2020 Biodiversity Strategy, EU Habitats and Birds Directives, and Water Framework Directives through targeted and monitored measures.

- **Priority 5 (P5): Promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors**

An overall need to address resource efficiency, reduce emissions, promote the production of renewable energy, and foster carbon sequestration was demonstrated in the outcomes of SWOT and public consultations.

- **Priority 6 (P6): Promoting social inclusion, poverty reduction and economic development in rural areas**

The SWOT and public consultation concluded that there was a need to support for enterprise development and job creation in areas like tourism, food and renewable energy. This is essential to ensure inclusive growth and economic development across urban-rural setting. Priority 6 also provides the basis for the LEADER programme modelled under this arm of the RDP and address key challenges faced in terms of poverty and social exclusion.

Each of the RDP priorities identify specific areas of intervention known as focus areas and the support is provided through measures and submeasures as set out in EU Regulation No 1305/2013. In some instances, schemes overlap across a number of measures and submeasures. Before availing of these measures and the funding allocated to each, we present a detailed discussion on the focus areas associated with the aforementioned priorities.[24]

*Focus Areas of Priority 1*

Priority 1 of RDP focusses on the following key areas:

- Focus Area 1A (FA1A): Fostering innovation, cooperation, and the development of the knowledge base in rural areas

The need for FA1A has been identified for multiple farming sectors such as beef, dairy, sheep, poultry, equine, and tillage. Since the emphasis was on developing knowledge base, the use of target groups was consistently referenced in the development of RDP. The FA1A represents an opportunity to address deficits in key knowledge areas such as financial management, animal health, environmental and climate action changes (identified in the FH2020 environmental analysis), and grass management.

[24] Source: The focus areas associated with each priority are detailed in 'Ireland's Rural Development Programme 2014-2020' published in July 2014. Retrieved from: https://www.agriculture.gov.ie/media/migration/agarchive/ruralenvironment/preparatoryworkfortherdp2014-2020/RDPFinaldraft03072014.pdf

- Focus Area 1B (FA1B): Strengthening the links between agriculture, food production and forestry, and research and innovation, including for the purpose of improved environmental management and performance

The stakeholder consultation and SWOT established a need for greater linkages between farm research and on-farm implementation. A possible means to address this includes support under European Innovation Partnership (EIP), given that EIP has overarching framework on agricultural productivity and sustainability.

- Focus Area 1C (FA 1C): Fostering lifelong learning and vocational training in the agricultural and forestry sectors

The FA1C combines on-farm visits with targeted online presentations for farmers with regard to Agri-environment education and training. The focussed training is in support of the Beef Data and Genomics Programme (BDGP), Green Low Carbon Agri-Environment Scheme (GLAS), and the Burren Programme.

*Focus Areas of Priority 2*

The focus areas of priority 2 are as follows:

- Focus Area 2A (FA2A): Improving the economic performance of all farms and facilitating farm restructuring and modernisation, notably with a view to increase market participation and orientation as well as agricultural diversification

FA2A focusses on capital investment in key sectors to support growth and expansion of agriculture. One of the key areas identified for on-farm investment is the dairy industry. Priorities that emerged include milking and cooling equipment. In addition to this, another important area that has been identified is the need for improved storage of farm organic nutrients such as soiled water facilities, soiled manure storage on poultry farms, and potential slurry storage. Other priorities include support for the uptake of low emission spreading technology and support for animal welfare, handling and safety equipment. The FA2A was also designed to improve the economic performance of farms and enhance farm viability and competitiveness for farmers located in the Areas of Natural Constraint.

- Focus Area 2B (FA2B): Facilitating the entry of adequately skilled farmers into the agricultural sector and in particular generational renewal

FA2B focusses on the need to support opportunities for trained young people in agriculture such that the age profile of farmers is improved. This is incorporated in the Young Farmer Capital Investment Scheme under Targeted Agricultural Modernisation Schemes II (TAMS II).

*Focus Areas of Priority 3*

Priority 3 of the RDP has two focus areas discussed below:

- Focus Area 3A (FA3A): Improving competitiveness of primary producers by better integrating them into the agri-food chain through quality schemes, adding value to agricultural products, promotion in local markets and short supply circuits, producer groups and organisations, and inter-branch organisations

The stakeholder consultation and SWOT analysis highlighted the need to support artisan food, organic products and direct selling of farm products. Moreover, the FH2020 also recommended broadening opportunities for the purchase of local foods. It is critical that the food quality and safety concerns are not affected through small scale production and direct selling, therefore it is essential to have continuous improvement and quality validation. The support to this sector is underlined in the RDP through advisory services, sheep welfare scheme, and the General EIP submeasure.

- Focus Area 3B (FA3B): Supporting farm risk management and prevention

FA3B in the RDP is under Animal Health and Welfare Advisory Services (AHWAS), Animal Welfare and Farm Safety, and participation in Knowledge Transfer groups. Farm risk management and prevention in case of animal and plant pest disease is addressed through these programmes and advisory services.

*Focus Areas of Priority 4*

There are three focus areas under P4:

- Focus Area 4A (FA4A): Restoring, preserving and enhancing biodiversity, including Natura 2000 areas, and in areas facing natural or other specific constraints and high nature value farming, as well as the state of European landscapes

The FA4A is in line with the objectives of directives such as the EU 2020 Biodiversity strategy, EU Habitats and Bird Directives, and Water Framework Directives. The RDP through P4 provides an essential mechanism for biodiversity preservation in Ireland and is targeted to reduce the constraints faced by farmers in designated Natura 2000 sites. The FA4A spans across multiple measures and submeasures that include advisory through knowledge transfer groups as well as well managed, monitored and targeted programmes.

- Focus Area 4B (FA4B): Improving water management, including fertiliser and pest management

FA4B addresses the need to improve water quality and management in sensitive areas and high-status waters. Moreover, appropriate use of fertiliser and its usage efficiency has been noted as an important opportunity that may be targeted under P4. The FA4B also spans across multiple measures and submeasures, thus signalling the weight given to the preservation of bio-diversity and water quality.

- Focus Area 4C (FA4C): Preventing soil erosion and improving soil management

Soil management has been accepted as a priority area in FH2020 and this is linked with FA4B through the management of nutrients and maintenance of fertiliser levels; also underlined in FA4C. Much like the other focus areas of P4, FA4C also extends to numerous measures and submeasures of RDP 2014 2020.

*Focus Areas of Priority 5*

Priority 5 has a total of five focus areas, as listed below. These focused on resource use in Agriculture. This is more than the number of focus areas outlined in other priorities of RDP 2014-2020.

- Focus Area 5A (FA5A): Increasing efficiency in water use by agriculture

Although Ireland has low water footprint, the SWOT analysis and public consultation established further measures to increase efficiency in water usage. This is also supported by the investment measures under Measure 4 of the RDP.

- Focus Area 5B (FA5B): Increasing efficiency in energy use in agriculture and food processing

There is a growing need to increase efficiency in the use of energy on farm. The FA5B is directed towards areas which are energy intensive, for example the pig sector, dairy, beef and poultry sectors.

- Focus Area 5C (FA5C): Facilitating the supply and use of renewable sources of energy, of by products, wastes, residues, and of other non-food raw material for purposes of the bio-economy

The SWOT analysis and stakeholder consultation identified the relevance for FA5C, given that there is an increasing need for improving the supply chain for bio-energy production and establishing better linkage of supply and demand. This can be enhanced from the support from the EIP and further investment support for renewable energy outlined under P2.

- Focus Area 5D (FA5D): Reducing greenhouse gas and ammonia emissions from agriculture

Given that significant amount of greenhouse gas and ammonia is produced from the agriculture sector,[25] it is critical to pursue measures to reduce these emissions. This involves improved livestock breeding and targeted Agri-environmental action that promotes innovation and best practice. Further, due to the need to respond to climate change through smart green growth in FH2020 strategy, the FA5D allows achievement of the dual objectives of RDP to increase farm productivity as well as supporting actions to mitigate the effects of climate change.

- Focus Area 5E (FA5E): Fostering carbon conservation and sequestration in agriculture and forestry

This focus area spans across multiple measures and submeasures with the idea that the objective can be met if there is an increase in the forestry cover combined with targeted Agri-environment actions that include wetlands and peatlands. The FA5E is also in line with one of the objectives of FH2020 and the subsequent FW2025, which highlights a need to assess how various land uses can increase carbon sequestration in soil.

*Focus Areas of Priority 6*

- Focus Area 6A (FA6A): Facilitating diversification creation, and development of small enterprises as well as job creation

[25] It should be noted that a code of Good Agricultural Practice is currently at consultation stage. This sets out strategies looking at feed strategies, low emission housing, low emission storage and spreading and fertiliser management.

The key aspects of FA6A include targeted approach for job creation and enterprise development through training and support. Some sectors which were identified as having potential include artisan foods, renewable energies, marine, social enterprise, and creative industries. The specific training and capacity building are facilitated through the LEADER element of RDP. This will also aid enterprise development in identified Local Development Strategies (LDS) areas and enterprise initiatives in the SME sector. While LEADER cannot fund infrastructure in areas that form part of the National Broadband Plan, it does provide funding for capacity building and ancillary support under the Broadband theme.

- Focus Area 6B (FA6B): Fostering local development in rural areas

The locally based initiatives, which can stimulate rural development with utilisation of all available resources, are required to promote effective and coherent development. These are underlined in FA6B using the LEADER approach to address the rural issues and initiate development plans that are integrated into the county and community planning processes.

- Focus Area 6C (FA6C): Enhancing accessibility use and quality of information and communication technologies (ICT) in rural areas

The SWOT and stakeholder consultation process identified needs such as development of high-speed broadband in rural areas; which has also been identified in 'Building Ireland's Smart Economy – A Framework for Sustainable Economic Recovery', and the report of the Commission for the Economic Development of Rural Areas. Thus, there is potential that the RDP through FA6C can support infrastructure development along with training initiatives under the LEADER programme. This however is not used in the Irish RDP to date.

The discussion on the RDP priorities and focus areas can be summarised in Figure 4.1, where we can see how each focus area feeds into their respective priorities underlined in the RDP to achieve the three objectives set out in Rural Development Regulation No 1305/2013.

**Figure 4.1: Flowchart of RDP Priorities and Focus Areas**


***Source: Indecon Review of RDP Documents***

## 4.3 Programme implementation

The implementation of Rural Development Programme 2014-2020 is managed by the Rural Development Division within the Department of Agriculture, Food and Marine (DAFM) that acts as the RDP's managing authority. The primary functions of the managing authority include: [26]

- 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;

[26] Source: The 2014-2020 Rural Development Programme for Ireland, Information and Publicity Strategy (December 2017). Retrieved from https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/InformPublicityStrategyDec2017060218.pdf

- Ensuring that the relevant progress and evaluation reports in relation to RDP implementation are provided;
- Ensuring publicity arrangements for the RDP are in place; and
- Putting in place implementation support structures for the RDP, including the establishment of a monitoring committee and the National Rural Network.

Moreover, as the managing authority, DAFM is responsible for Information and Policy Strategy and acts as a coordinator for all information and publicity activities underlined in the RDP. The implementation process also involves inputs from various other bodies and entities such as the implementing line divisions with the Department of Rural and Community Development (DRCD), the DAFM communications and press offices, the National Rural Network (NRN) and the European Commission (EC).

The RDP also has a Monitoring Committee, set in accordance with Article 47 of (EU) Regulation 1303/2015 composing relevant stakeholders, which monitors overall performance and the effectiveness of RDP implementation.

The NRN supports the implementation of the RDP and aims to increase the involvement of stakeholders in the implementation of rural development, improve the quality of implementation of rural development programmes, and foster innovation in agriculture, food production, forestry and rural areas.[27] Finally, the Paying Agency of RDP is set up to oversee that payments made are legal, regular and properly accounted for. The Paying Agency comprises:[28]

- Finance Division within DAFM, which manages the claims for expenditure under EAFRD;
- Implementing line divisions within DAFM;
- 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. This are also involved in policy formation; and
- DRCD is a delegated body of the Paying Agency in respect of LEADER.

### *Measures and Submeasures*

The Irish RDP programme delivers support to the identified priorities and the associated focus areas through eleven key measures which are further divided into submeasures. Table 4.1 shows these measures and lists the focus areas to which these measures are linked.

[27] Source: Summary of Rural Development Programme- Ireland 2014-2020 (September 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

[28] Source: Summary of Rural Development Programme- Ireland 2014-2020 (September 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

| Table 4.1: Measure, submeasures and targeted Focus Areas | | |
|---|---|---|
| **Measures** | **Submeasures** | **Focus Areas** |
| M1: Knowledge Transfer and Information Action | M1.1: Knowledge Transfer Groups | FA1A, FA1C, FA2A, FA3B, FA4A, FA4B, FA4C, FA5D |
| | M1.1: Training in support of GLAS and BDGP | FA1A, FA1C, FA4A, FA4B, FA4C, FA5D |
| M2: Advisory Services, farm management, and farm relief services | M2.1: Support for setting up of Producer Organisation | FA3A |
| | M2.1: Animal Health and Welfare- On farm Advice | FA1A, FA3B |
| | M2.3: CPD for Agricultural services | FA1A, FA2A, FA4A, FA4B, FA4C, FA5D |
| | M2.3: Animal Health and Welfare: Training for Advisors | FA1A, FA3B |
| M4: Investment in Physical Assets | M4.1: Targeted Agricultural Modernisation Schemes (TAMS II) | FA2A, FA2B, FA3B, FA4A, FA5B, FA5D |
| | M4.4: Non-productive investments (delivered via GLAS) | FA4A, FA5D, FA5B, |
| M7: Basic Services and village renewal in rural areas | M7.6: GLAS Traditional farm buildings | FA4A |
| M10: Agri-environment-climate | M10.1: GLAS and GLAS+ | FA4A, FA4B, FA4C, FA5D, FA5E |
| | M10.1: BDGP | FA5D |
| | M10.1: The Burren Programme | FA4A |
| M11: Organic Farming | M11.1 and M11.2: The organic farming scheme | FA4A, FA4B, FA4C |
| M12: Natura 2000 and WFD (Transitional) | M12.1: Natura 2000 and WFD | FA4A, FA4B, FA4C |
| M13: Payments to areas facing natural or other specific constraints | M13.2: Areas of Natural Constraints (ANCs) | FA4A |
| | M13.3: Specific support for offshore island farming | FA4A |
| M14: Animal Welfare | M14.1: Animal Welfare Scheme (Sheep) | FA3A |
| M16: Co-operation | M16.1: European Innovation Partnership (EIP)- General EIPs | FA1A, FA1B, FA2A, FA2B, FA3A, FA3B |
| | M16.1: EIPs- Locally led Hen Harrier and Freshwater pearl mussel project | FA1A, FA1B, FA4A, FA4B, FA4C |
| | M16.1: EIPs- Locally led environmental and climate projects | FA1A, FA1B, FA4A, FA4B, FA4C, FA5A, FA5B, FA5C, FA5D, FA5E |
| | M16.3: Support for Collaborative Farming | FA1A, FA1B, FA2A, FA2B |
| M19: Support for LEADER local development (CLLD-Community-Led Local Development) | M19.1: LEADER preparatory support | FA6B |
| | M19.2: LEADER support for implementation of operations under CLLD strategy | FA6B |
| | M19.3: LEADER support for preparation and implementation of co-operation activities of the Local Area Groups | FA6B |
| | M19.4: LEADER support for running costs and animation | FA6B |
| ***Source: Indecon Review of RDP Documents*** | | |

## 4.4 RDP 2014-2020 Amendments

There have been six amendments to the RDP since its formal adoption in 2015. The main changes associated with each of these amendments are summarised below.

***First Amendment (Approved June 2016)***

- Measure 4: The amendment to TAMS II to a new Tillage scheme, rainwater harvesting and sheep fencing.
- GLAS: This amendment included a change to mandatory area that is delivered on identified farmland bird area. It was altered from GLAS I to GLAS II from 80% to 50% for all farmland birds except for corncrake in which the case minimum is 30%. If the area omitted from the GLAS plan was Natura, then it was to be brought into the GLAS contract.
- LEADER: The amendments included the inclusion of second hand equipment, moving from a simplified lump-sum costs to payment of costs incurred, acceptance of contributions in kind, and inclusion of direct references to payment advances, and Derogation from the population limits, laid down in Article 33(6) of Regulation (EU) No 1306/2013, for selection of geographical areas for local development strategy implementation.
- Knowledge Transfer: The amendment allowed a farmer to participate in two KT groups in different sectors.
- Common Context Indicator: A small amendment in relation to percentage of "rural population" to align the indicator with programme-specific indicator figure. With this amendment, the indicator figure increased from 72.4% to 82%.
- Organics: The organics amendment related to the extension to organic farmers contracted under the terms of the 2007-2013 RDP and adding land to new or extended organic farmers contracts.
- Burren Programme: The Burren Programme amendment introduced an additional submeasure under Measure 10: "The Burren Programme".

***Second Amendment (Approved January 2017))***

- Measure 2: The amendment introduced a new submeasure for support for the setting up of Beef Producer Organisations.
- Measure 10: Several changes were made to GLAS measure with regards to GLAS+, Twite B, Twite D, Corncake, Geese and Swans, Grey Partridge, Bird/bat/bee boxes, Fencing related actions, and other few minor changes.
- Measure 14: The amendment, which introduced the Sheep Welfare Scheme, aimed to improve animal welfare by introducing targeted intervention in the areas of lameness control, parasite control, flystrike control, scanning of pregnant ewes and mineral supplementation.
- Measure 16: The amendment introduced: (i) M16.1 support for European Innovation Partnership (EIP) Operational Groups – Locally Led Hen Harrier and Freshwater Pearl Mussel Projects; and (ii) M16.1 support for European Innovation Partnership (EIP) Operational Groups – Locally Led Environmental and Climate Projects.

Financial Plan

- €0.3 million of Measure 1 funding transferred to Measure 2 Setting of Producer Organisations
- €50 million of Measure 13 Areas facing Natural Constraints transferred to Measure 14 Animal Welfare with an additional national financing of €50 million added to both Measure 13 Areas facing Natural Constraints and Measure 14 Animal Welfare.
- €70 million allocated to Measure 10 for Locally Led Scheme split as: €15 million for the Burren, €35 million for Measure 10, and €20 million transferred from Measure 10 to Measure 16.
- The total EAFRD was reported to be €2,500 less than €2.2 billion given in RDP.
- €6 million transferred from Young Farmer's Capital Investment to Low Emission Slurry Spreading.

- Minor Changes included selection criteria of M1 KT and M10 Burren. Also, the change was made for the possibility for alternative reference year for M10 BDGP.

***Third Amendment (Approved October 2017)***

- Measure 4: The proposed amendment standardised the Minimum Eligible Area (MEA) eligibility conditions for YFCI and brought the Minimum Eligible Area (MEA) eligibility conditions for OCI in line with the MEA under Measure 11 Organic Farming Scheme.
- Measure 14: The reference to the Faecal Egg Counts on Ewes option under Measure 14 Animal Welfare was removed given the risk of false negative results.
- Common Context Indicator for HNV Farming: As the initial baseline methodology focused largely on Natura lands and the new methodology was intended to capture the extent of HNV outside of designated areas as well, a significant increase was made in the HNV indicator (22% to 43% of total UAA).
- Measure 20: The proposed amendments allowed Technical Assistance budget to be used to cover any preparatory support required to set up European Innovation Partnership Operational Groups. The proposed amendment also correctly identified the DAFM Inspectorate as the division responsible for the Measure 20 on-the-spot checks.

***Fourth Amendment (Approved August 2018)***

- Changes to the Performance Framework were made including:
- Priority 2: The 2018 milestone was reduced by 25% due to significant changes in the economic conditions, resulting lack of appetite for investment, and the number of operations completed under TAMS, Priority 2 and in particular the Dairy Equipment being not as anticipated.
- Priority 3: The sum of €50 million was included in the adjustment top up column due to the introduction of the Sheep Welfare Scheme (M14). However, no changes were made to the 2023 target or 2018 milestone percentage.

- Priority 4: The default indicator on agricultural land (under P3) was deleted after the inclusion of alternative indicator, Total Area of Support under P4 for M10 GLAS and M13 ANC, which covers more than 50% of the expected spend under the priority. Furthermore, change to the area included in the 2023 target for the alternative indicator since the original target value included all area under GLAS (Priorities 4 and 5) and all eligible area under M13: ANC. However, the calculation of progress towards the target on the European Commission's System for Fund Management (SFC) includes area under GLAS (P4 only) and those paid under M13: ANC.
- Priority 5: Correction made to the 2018 milestone percentage.
- Measure 1: Technical amendment to align the text on Burren Training i.e. that the training for the Burren Programme is delivered by the Burren Team and funded as part of the general contract of the Burren Team under Measure 20.
- Measure 13: To take account of the increase annual funding to the ANC scheme by €25 million.
- Measure 19: Changes to the LEADER Food Initiative to allow a broader range of beneficiaries to be supported.

***Fifth Amendment (Approved October 2018)***

- The abnormal weather conditions which resulted into long winter months and unexpected high levels of snow severely hampered the grass growth which in turn had implications the fodder on Irish farms. Since the usual levels of fodder were not met, hence the GLAS was amended for two actions: first, Low Input Permanent Pasture; and second, Environmental Management of Fallow Land, for a defined period in 2018 only, in order to potentially increase fodder stocks.

***Sixth Amendment (Approved February 2019)***

- The changes to Measure 13 arising from the completion of the delineation of eligible areas under the Measure with reference to Article 32 and Annex III of 1305/2013.
- In addition, the increased allocation of €96 million (€48 million in 2019 and 2020) to the Scheme was added by this amendment, bringing the overall Measure 13 budget to €1,441 million.

## 4.5 Intervention Logic

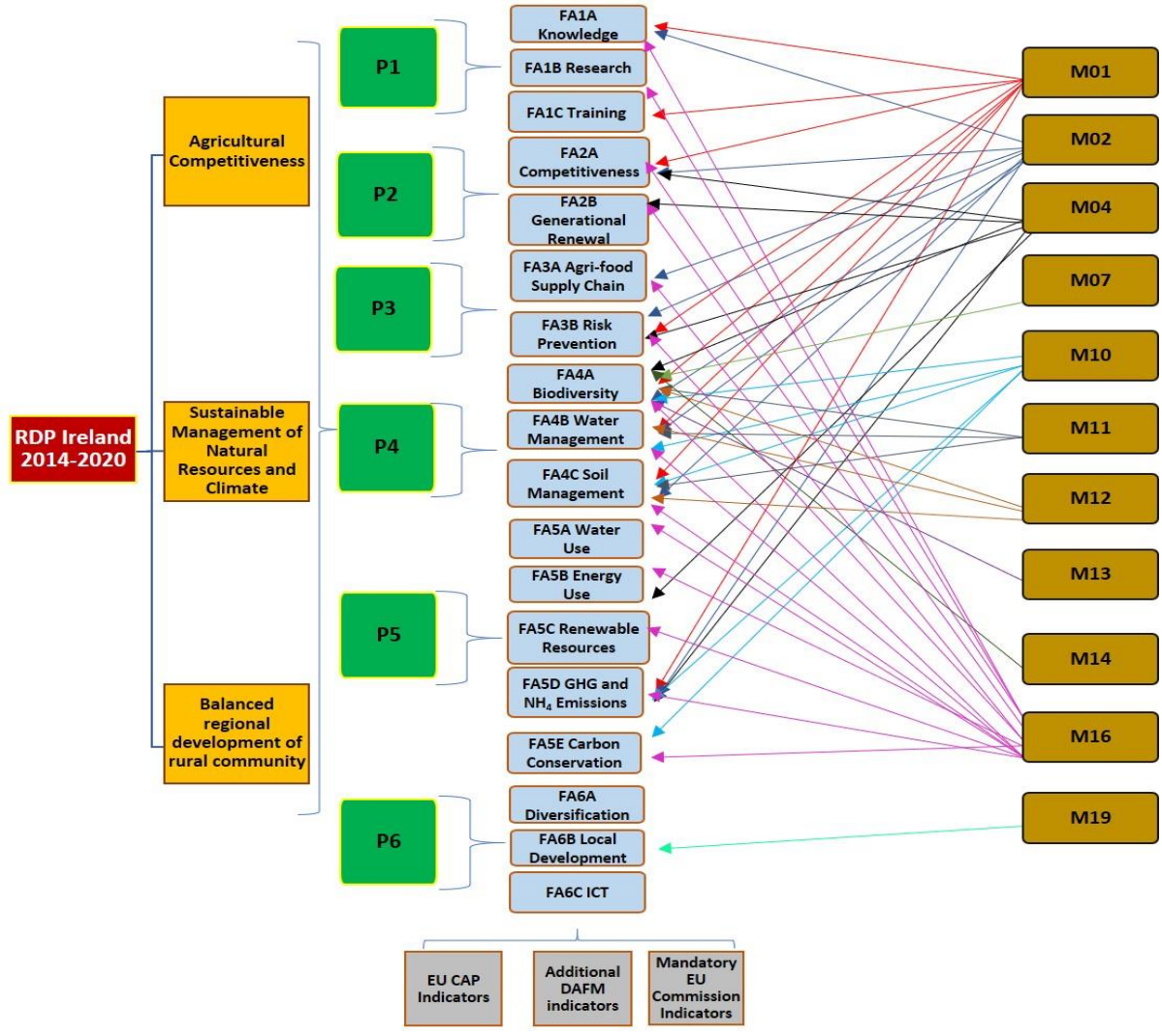
According to the guidelines from the European Evaluation Helpdesk for Rural Development (EEHRD), intervention logic is the starting point for evaluation of a programme. Intervention logic, as defined by EEHRD is a:

> *"…methodological instrument which establishes the logical link between programme objectives and the operational actions envisaged. It shows the conceptual link from an intervention's input to its output and, subsequently, to its results and impacts. Thus,*

*intervention logic allows an assessment of a measure's contribution to the achievement of its objectives."*[29]

The intervention logic for Ireland RDP 2014-2020 is presented in Figure 4.2, where it provides a broad view of the target indicators that are used to answer Common Evaluation Questions (CEQs) associated with focus areas of the six identified priorities of RDP 2014-2020. In addition to the main target indicators, there are also mandatory EU Commission indicators updated by the DAFM and some additional indicators collated by the DAFM to inform quantification of the impact of rural development interventions and to assist in answering the CEQs. Moreover, there are CAP impact indicators developed by the European Commission to further assist in the evaluation of RDP outcomes.

**Figure 4.2: RDP Specific Intervention Logic**




***Source: Ireland RDP 2014-2020 Documents and Reports***

[29] Source: European Evaluation Helpdesk for Rural Development (EEHRD) guidelines on establishing and implementing the evaluation plan of 2014-2020 RDPs, June (2015). Retrieved from: https://ec.europa.eu/agriculture/sites/agriculture/files/evaluation/guidelines/2014-2020-establishing-implementing-evaluation-plan-rdp_en.pdf

## 4.6 Budget and Programme Funding Balance

Funding for the RDP is allocated to the measures and their respective submeasures to arrive at outcomes outlined in the priorities of the programme. Consideration of the allocated budget and the spending is critical in evaluating the RDP programme. The current spending profile of RDP expenditure compared to the original allocation and the updated expected expenditure is shown in Table 4.2. The table below shows that the levels of spending compared to the level of expected spending varies considerably by the different measures and submeasures. The training measures relating to GLAS and BDGP are close to the full allocation at this stage. Similarly, some of the transitional payments are close to the final allocation. Overall, around 57% of the total allocation has been spent at the end of 2018. There are a number of measures that appear to be significantly below the expected level of expenditure and unless adjustments are made, the overall allocation may not be spent by the end of the programme. However, some of the measures that have relatively low levels of current expenditure may catch up before the end for programme. Much of this relates to the time taken between approval of funds and the actual drawdown of these funds. This applies to schemes like TAMS II and LEADER. Similarly, the EIPs are expected to increase expenditure significantly in 2019 and 2020 as expenditure so far has been mainly focused on the setting up of the EIPs. This highlights the need to minimise administrative requirements while ensuring adequate measures are taken to ensure appropriate accountability.

**Table 4.2: RDP 2014-2020 Current Spending (End-2018) versus Allocations**

| Measure | Submeasure | Total Scheme Allocation (€ Million) | Total Expected Spend (€ Million) | Total Current Spend (End-2018) (€ Million) | % Vs. Expected Spend |
|---|---|---|---|---|---|
| M1: Knowledge Transfer and Information Action | Knowledge Transfer Groups | 99.70[30] | 69.00 | 35.4 | 51.4% |
| | Training in support of GLAS | 12.00 | 12.00 | 11.3 | 94.4% |
| | BDGP Training | 14.10 | 10.70 | 10.4 | 97.4% |
| M2: Advisory Services, farm management, and farm relief services | CPD for Advisors | 2.00 | 2.00 | 0.1 | 5.9% |
| | TASAH Advisory | 6.00 | 3.53 | 1.0 | 28.7% |
| | Setting up POs | 0.30 | 0.30 | 0 | 0.0% |
| M4: Investment in Physical Assets | TAMS II | 381.70 | 387.99 | 106.11 | 27.3% |
| | TAMS I (transitional) | 13.30 | 7.38 | 7.23 | 98.0% |
| | AEOS (transitional) | 30.00 | 15.77 | 15.81 | 100.0% |
| M7: Basic Services and village renewal in rural areas | GLAS Traditional farm buildings | 6.00 | 6.00 | 2.3 | 38.6% |
| M10: Agri-environment-climate | GLAS | 920.45[31] | 1,082.66 | 528.7 | 48.8% |
| | Burren Programme | 12.86[32] | 12.86 | 2.1 | 16.6% |
| | REPS/AEOS/OFS Trans. | 316.80 | 315.5 | 315.5 | 100% |
| | BGDP | 280.90 | 271.72 | 168.8 | 62.1% |
| M11: Organic Farming | Organic farming scheme | 56.00 | 65.76 | 23.3 | 35.5% |
| M12: Natura 2000 and WFD | Old Natura AEOS/REPS (Transitional) | 73.25 | 46.74 | 44.6 | 95.3% |
| M13: Payments to areas facing natural or other specific constraints | ANC | 1491.00 | 1492.80 | 1042.5 | 69.8% |

[30] €300,000 reallocated to allow for the introduction of the Beef Producer Organisations Scheme.
[31] €70m reallocated to allow for the introduction of the Burren Programme and the Locally Led EIPs.
[32] The Burren Team is funded under Measure 20 Technical Assistance.

| | | | | | |
|---|---|---|---|---|---|
| M14: Animal Welfare | Sheep Welfare Scheme | 100.00[33] | 78.78 | 33.5 | 42.5% |
| M16: Co-operation | General EIPs | 4.00 | 4.00 | 0.1 | 1.8% |
| | Locally led HH and FWPM | 35.00 | 35.00 | 3.5 | 10.1% |
| | Locally led environment and climate | 20.00 | 20.00 | | 0.0% |
| | Collaborative Farming | 3.00 | 2.21 | 1.0 | 46.9% |
| M19: Support for LEADER local development (CLLD-Community-Led Local Development) | LEADER | 250.00 | 250.00 | 36.1 | 14.4% |
| M20: Technical Assistance and Transitional Funding | Tech. Assistance | 8.14 | 6.45 | 2.1 | 32.5% |
| ERS (Transition) | | 9.21 | 7.70 | 7.5 | 97.2% |
| ***Total*** | | ***4,145.71*** | ***4,206.85*** | 2,399.0 | ***57.0%*** |
| ***Source: RDP 6th Amendment document, DAFM indicator data and RDP Expenditure Review June 2018*** | | | | | |

## 4.7 Summary

- The objectives of the RDP (competiveness, sustainable management and balanced regional development) are further detailed into six broad priority areas. These priorities are distributed into key focus areas related to the competitiveness and viability of agriculture and agri-environment objectives. The Irish RDP programme delivers support through eleven measures which are further divided into 19 submeasures. Certain RDP measures contribute to a number of areas. For example, the on-farm capital investment measure (TAMS II) is targeted at improving the competitiveness of agriculture but it also links to the various agri-environmental related areas of the RDP.
- At the end of 2018, approximately 57% of the overall RDP allocation was spent. The allocation of RDP 2014-2020 funding was highest in Measure 13 (Payment to areas facing natural constraints or other specific constraints), followed by GLAS under Measure 10 (Agri-environment and climate), and TAMS II under M4 (Investment in physical assets). An analysis of the levels of expenditure as at the end of 2018 indicates that while good progress has been made in spends there are a number of measures where spend is significantly below the expected levels. While expenditure is expected to increase significantly in 2019 and 2020, it is important that where targets are unlikely to be met, that funds are reallocated.

[33] €100m additional national financing allocation for the Sheep Welfare Scheme.

# 5 Evaluation of Wider Programme Level Impacts

## 5.1 Introduction

In this section, we examine the wider impacts of the RDP expenditure at a programme level rather than at individual measure or focus area level. These cover some of the Common Evaluation Questions (CEQs) for example the impacts of the support in terms of supporting the wider rural economy, the impact on raising the employment rate and reducing poverty in rural areas. However, it has not been feasible to measure the quantified impact during this interim report of some CEQs such as to what extent has the RDP contributed to achieving the EU2020 headline target of investing 3% of EU's GDP in research and development and innovation. This is because there are no major R&D measures in the Programme. However, in other chapters we review EIPs and knowledge transfer measures which are likely to make some small contributions towards RD&I targets.

## 5.2 Wider Impact of RDP expenditures

In estimating the economy-wide impact of the RDP, Indecon utilised the 'BIO-ECONOMY' Input-Output model,[34] which was developed in a collaborative research project between Teagasc, NUI Galway in association with the Marine Institute and funded by a Beaufort Marine Research Award and the Teagasc Research Programme. This model is a disaggregation of the agricultural sectors of the national CSO Input-Output tables, which only provides the primary resource sectors, *Agriculture, Forestry and Fisheries* in aggregate form. The BIO-ECONOMY Model decomposes these sectors into a finer sectoral resolution, which takes into account the different economic structure and impact of some farm activities have compared to others. The development of the BIO-ECONOMY model follows earlier work on the Irish Agri-Food sector by O'Toole and Matthews (2002) and Miller *et al.* (2014).

One way of understanding the impact of Irish agriculture on the broader economy is to examine the so-called multiplier impacts. This allows for the direct and indirect impacts of activity on the rest of the economy through activity multipliers. The next table reports the output multipliers, for nine primary sectors identified in the Input-Output model, with a weighted average of the economy-wide multipliers. The output multiplier for cattle of 1.8 should be interpreted as follows: an additional output of €1 of cattle sales results in an additional output of €1.8 in the economy overall. The indirect effect of inter-industry linkages in this case is €0.8. In the next table, the primary sectors are ranked in decreasing order of output multiplier. It shows that the output multiplier for most primary agricultural sectors are higher than the economy average, indicating the relatively high level of economic linkages in the agricultural sector.

[34] "The Bio-Economy Input Output Model: Development and Uses", Grealish et al., 2015.

| Table 5.1: Direct + Indirect Impacts of Primary Agriculture Sectors - Output Multipliers | | |
|---|---|---|
| | Multiplier | Ranking |
| Cattle | 1.8 | 1 |
| Forestry | 1.5 | 2 |
| Horses | 1.5 | 3 |
| Sheep | 1.5 | 4 |
| Poultry | 1.5 | 5 |
| Dairy | 1.4 | 6 |
| Pigs | 1.4 | 7 |
| Aquaculture | 1.4 | 8 |
| Fishing | 1.4 | 9 |
| **Economy Average** | **1.4** | **10** |
| Deer and Goats | 1.3 | 11 |
| Horticulture & Potatoes | 1.2 | 12 |
| ***Source: Indecon analysis of BIO-ECONOMY Input-Output Model*** | | |

An important indicator is the extent to which an economic activity generates additional value added in the economy. Value added in national accounts refers to the contribution of the factors of production, i.e., capital (e.g., land and capital goods) and labour, to raising the value of a product and corresponds to the incomes received by the owners of these factors. In agriculture, this is mostly related to farm-level income. The extent to which value added is generated by an additional sale of €1 of each good is shown in the table, and again is ranked from highest to lowest. Generally, agriculture is in line with the national economy average in terms of the size of the value-added multiplier.

| Table 5.2: Direct + Indirect Impacts of Primary Agriculture Sectors - Value Added Multipliers | | |
|---|---|---|
| | Multiplier | Ranking |
| Fishing | 0.7 | 1 |
| Horticulture & Potatoes | 0.7 | 2 |
| Deer and Goats | 0.7 | 3 |
| Dairy | 0.6 | 4 |
| **Economy Average** | **0.6** | **5** |
| Horses | 0.5 | 6 |
| Aquaculture | 0.5 | 7 |
| Sheep | 0.5 | 8 |
| Forestry | 0.4 | 9 |
| Cattle | 0.4 | 10 |
| Pigs | 0.3 | 11 |
| Poultry | 0.2 | 12 |
| ***Source: Indecon analysis of BIO-ECONOMY Input-Output Model*** | | |

The direct expenditure of RDP supports in itself creates an income stream in the farm enterprise, which in turn has a broader economic impact on the wider economy. There are two forms of impacts which Indecon have incorporated in this regard:

- *On-Farm Investment:* This captures the structure of investment in the agricultural sector. The breakdown of this is used in the model to estimate the sectoral-level demand structure for expenditures relating to on-farm investment. This includes AEOS (transitional), TAMS I (transitional) and TAMS II.
- *Household consumption*: This is relevant for measuring the direct plus indirect effect of RDP expenditures which raise farm/non-farm household incomes through direct payments.

When the direct and indirect impact of this expenditure is taken into account, the total impact in terms of expenditure/output on the Irish economy was €2,186m over the course of the 2014-2018 period. Over the entire RDP, we estimate that the total impact will be around €3,786. Similar interpretations can be put on the measures of Value Added and Wages. It should be noted that there was a relatively low level of expenditure on RDP measures at the outset of the programme in 2014, and that much of the expenditure happened in 2017-2018. We also included induced impacts. These are not derived from the 'BIO-ECONOMY' model and we use Indecon's input-output model of the Irish economy to derive these induced impacts. Adding induced impacts suggests that the overall impact of the RDP is likely to be around €4,240 million when complete.

**Table 5.3: Estimated RDP Expenditure Impacts, 2014-2018**

| | Direct Impacts | | Direct + Indirect Impacts | | Direct + Indirect Impacts+ Induced Impacts | |
|---|---|---|---|---|---|---|
| | 2014-2018 | Full RDP period | 2014-2018 | Full RDP period | 2014-2018 | Full RDP period |
| Output | €1,531m | €2,644m | €2,186m | €3,786 | €2,455m | €4,240 |
| Value Added | €780m | €1,323m | €1,097m | €1,871 | €1,442m | €2,446 |
| Employee Wages | €388m | €671m | €541m | €941 | €545m | €943m |

***Source: Indecon Expenditure Impact Assessment Model***[35]

Taking this output impact, it is possible to derive an estimate of the total employment that is supported annually by the RDP expenditure. This analysis is shown in Table 5.4 and our estimates indicate that the RDP supports around 4,881 jobs annually. This assumes that the expenditure is spread evenly across all years of the RDP.

**Table 5.4: Estimated Overall Employment Impacts of RDP Expenditure Direct and Indirect Impacts,**

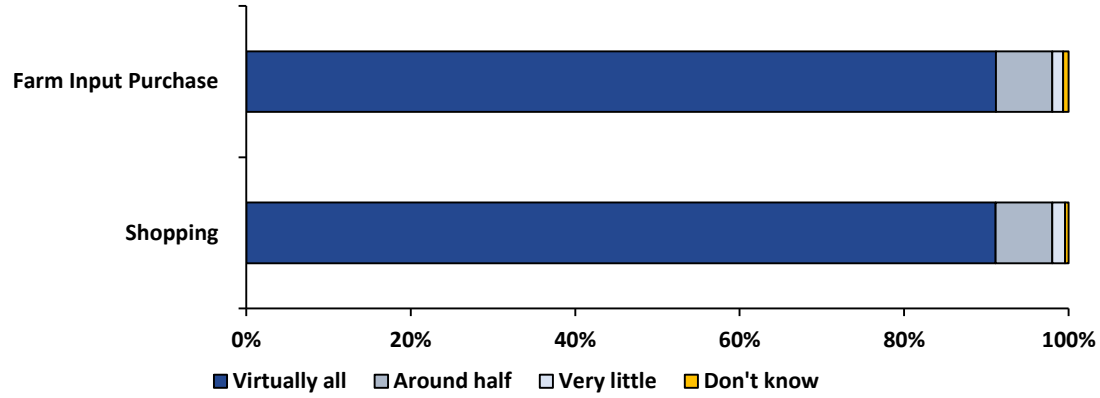
| | Employment Annually |
|---|---|
| Employment Impacts | 4,881 |

***Source: Indecon Expenditure Impact Assessment Model***

[35] It must be noted that we do not include induced impacts which may be applicable to RDP expenditure.

As part of this mid-term evaluation Indecon considered the regional and rural development impact of RDP expenditure. Our approach to this is based on combining survey data with a regional input-output model. This regional input-output model separates Ireland into two regions based on a NUTS 2 basis.[36] As part of our survey, we obtained their estimates of the share of beneficiaries' expenditure in their local region. This research shown in Figure 5.1, suggested the majority farmers indicate that they purchase most of the farm inputs and other shopping items within 35 kilometres of their farms, thus giving some insights on the indirect and economic effects of RDP supported farms. Over 90% of respondents indicated that 'virtually all' of their expenditure was within 35 kilometres of their farm. While there is no significant difference in the results the figure presents these separately as individual survey questions dealt with each type of expenditure.

**Figure 5.1: Expenditure Activity of ANC beneficiaries within 35 km of Farm**




*Source: Indecon survey*

An estimate of the regional impacts was completed by Indecon using a two-region Input-Output model for Ireland.[37] Indecon judged that the structure of the Border, Midland West region would be a reasonable approximation for the aggregate rural economy. We adjust final demand based on an estimate that 86% of expenditure is local. We then estimate multiplier (direct and indirect impacts) estimates using an input-output approach.[38] The results of the analysis are shown in the next table. Our estimates indicate that the total direct and indirect impact of RDP expenditure on the rural economy is of the order of €1,863m in output, compared to the aggregate national impact of RDP expenditure of €2,186m. If we assume that the expected level of expenditure is all spent by the end of the programme, we estimate that there will be €3,217 million in direct and indirect impacts. If we include induced impacts, this figure rises to €3,629 million. This compares to a national impact of €4,240 million.

[36] The two NUTS2 regions in Ireland are the Border, Midland and Western Region, and the Southern and Eastern Region.

[37] "A Study of the NUTS 2 Administrative Regions using Input-Output Analysis", MacFeely, Moloney & Kenneally.

[38] This is consistent with the approach used in the 2007-2013 Ex-Post RDP evaluation which was undertaken by Indecon. Further details on this approach is included in this report.

| Table 5.5: Estimated Rural Expenditure Impacts (€million) | | | |
|---|---|---|---|
| | **Direct Impacts** | **Direct + Indirect Impacts** | **Direct + Indirect Impacts+ Induced Impacts** |
| Regional Impact – Output* (2014-2018) | €1,311 | €1,863 | €2,101 |
| Regional Impact – Output* (Full RDP period) | €2,263 | €3,217 | €3,629 |

***Source: Indecon Expenditure Impact Assessment Model***

* These are derived by getting the product of the RDP expenditure by first-round regional expenditure share.

Indecon's multipliers are based on the most up to date detailed evidence from an input-output model of the Irish economy. These rigorously measure the economy wide impact of the expenditure of the programme and do not represent a cost benefit analysis. In contrast to measuring programme level impacts any cost benefit analysis of specific measures would consider non expenditure impacts and would also take account of the shadow price of public funds, and the level of deadweight. It would also be usual in a cost benefit analysis in an Irish context to exclude induced effects. In our counterfactual econometric modelling of specific measures we attempt to measure the impact compared to what would have occurred without the investment.

Indecon has estimated the employment impacts of the output impacts using a Type I effects multiplier.[39] This implies that that RDP expenditure supports 4,178 jobs on an annual basis in the rural economy. However, Indecon would advise caution in the interpretation of this estimate as there are some uncertainties regarding rural impacts.

| Table 5.6: Estimated Rural Employment Impacts of RDP Expenditure | |
|---|---|
| | **Rural Employment Annually** |
| Employment Impacts | 4,178 |

***Source: Indecon Expenditure Impact Assessment Model***

As part of our analysis of the wider impact of the RDP, we also considered supply-side impacts of the expenditure. It is likely that many of the RDP interventions will have positive impacts on agricultural output. These impacts are likely to enhance long term Gross Value Added (GVA) and employment. In order to estimate the likely supply-side impacts, we use estimates from our counterfactual analysis to inform our estimates. Our analysis indicates that capital investment is likely to have a positive impact on output. While agri-environment measures are likely to have a relatively low direct impact on output, they are critical in addressing climate change and biodiversity objectives. In our modelling we use a weighted average based on the level of RDP funding given to TAMS, GLAS, and ANC. Our analysis suggests that, on average, output is likely to have increased by 1.4%[40] with membership in TAMS, GLAS and ANC scheme. It must be noted that this is a mid-term review and many of the impacts are not fully observable at this stage.

Based on our analysis and assumptions regarding the number of farmers in receipt of RDP funding, Indecon has estimated the likely supply-side impact of RDP expenditure. These figures are combined with the observed increased levels of farm output during the 2014-2018 period. We would note that the estimates are net of deadweight and attempt to identify only the additionality attributable to RDP expenditure. These figures should be viewed with caution as supply-side impacts may take some time to materialise.

[39] This gives us the direct and the indirect impacts.

[40] This estimate is based on the weighted average of the counterfactual impact estimates with the amount of funding on TAMS, ANC and GLAS used as respective weights. The figures for TAMS are based on the likely long-term impacts.

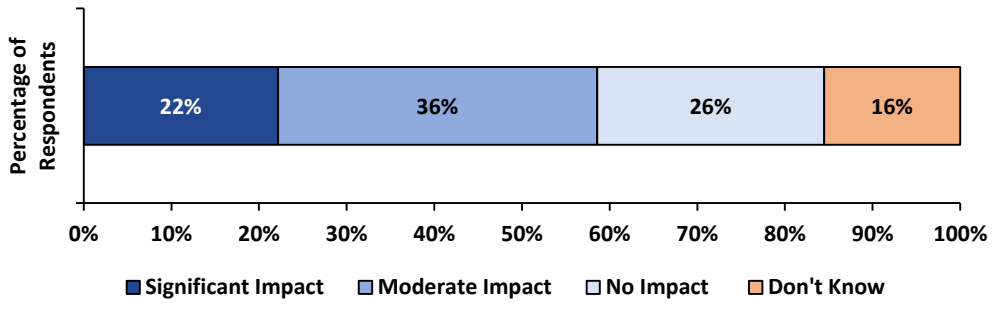
| Table 5.7: Supply-side Direct and Indirect Impacts of RDP (2014-2018) | |
|---|---|
| **Supply-side Impact Metric** | **Net Impact (Direct + Indirect)** |
| Output Impact | €207m |
| GVA Impact | €70.3m |
| Employee Wage Impact | €25.2m |
| Employment (Annual basis) | 484 |
| ***Source: Indecon Expenditure Impact Assessment Model*** | |

Indecon's findings suggest that RDP expenditure has contributed to the supply side of the economy, net of deadweight, of the order of €207 million in output terms and €70.3 million in contribution to GVA. We also estimate that RDP expenditure supports around 484 additional direct and indirect jobs on an annual basis through supply-side impacts. This may increase as output increases due to the RDP interventions.

## 5.3 Wider Impact of RDP Expenditures on Poverty

Figure 5.2 provides the views of RDP farmer beneficiaries and LEADER groups/beneficiaries on the impact that they believe the RDP has had on achieving the EU 2020 target of reducing the number of individuals living below the national poverty line. Just over one third (36%) of respondents view the impact of the RDP on poverty reduction to have been moderate, while 22% believe the RDP to have a significant impact in efforts to achieve the EU 2020 poverty reduction target. The results are, likely to reflect the composition of the RDP as many of the measures are not directly focused on reducing poverty. However, the increased employment arising from the RDP as well as ANC measures are likely to have impacted positively in poverty levels. In the next RDP consideration of how to ensure links with wider national action plans to reduce poverty merit consideration. The next National Action Plan for poverty reduction is likely to include a number of specific actions for rural communities. There is an obvious link between the projects supported by LEADER and the type of basic services that will be required to reduce poverty.

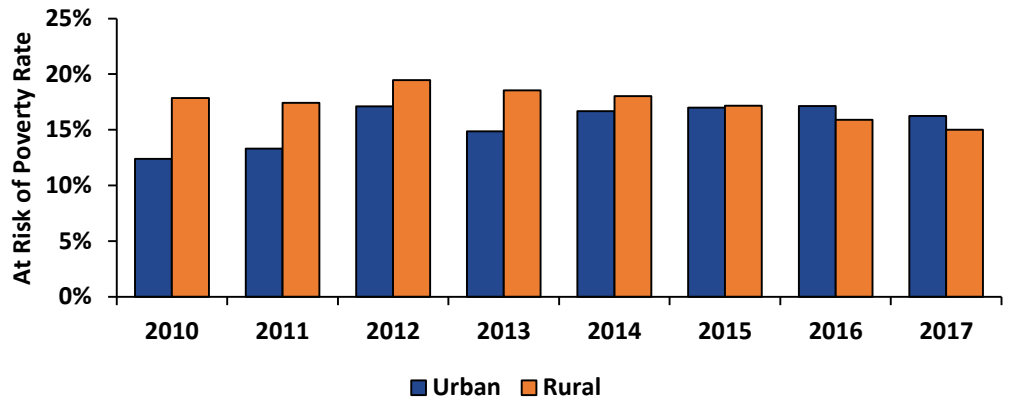
**Figure 5.2: Views of RDP Farmer Beneficiaries and LEADER Groups/Beneficiaries on the Impact of RDP on Achieving the EU 2020 Headline Target of Reducing the Number of Europeans Living Below the National Poverty Line**




***Source: Indecon survey***

In order to further contextualise the poverty[41] in rural households in Ireland, we examined evidence from EU-SILC data. Figure 5.3 presents the "at risk of poverty" rates for rural households and urban households between 2010 and 2017. This illustrates that the 'at risk of poverty' rate for rural households has decreased by 23% from its peak of 19.5% in 2012 to 15.0% in 2017. The 'at risk of poverty' rate has fallen marginally for urban households during this same period from 17.1% to 16.2%

**Figure 5.3: At Risk of Poverty Rates for Rural vs. Urban Households, 2010-2017**

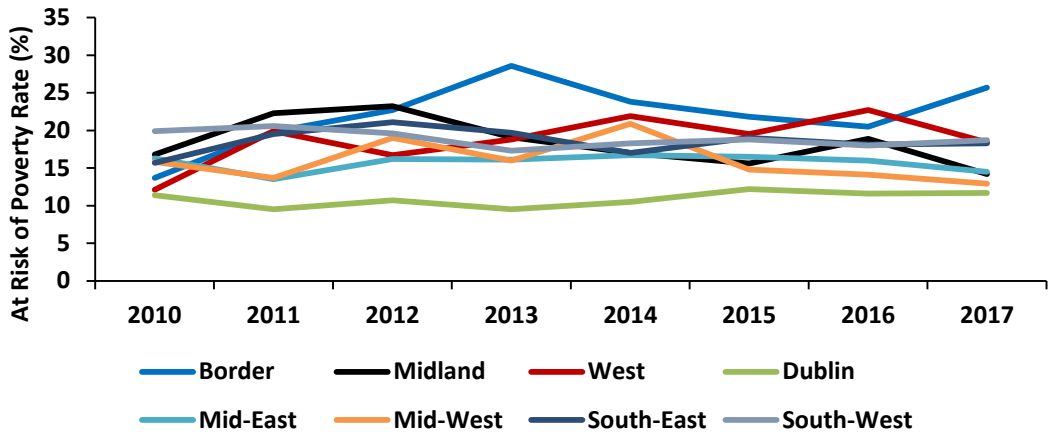



***Source: Indecon Analysis of EU-SILC Data.***
***Note: At risk of poverty at 60% level using EU definition of income and OECD equivalence scale. Farms are defined using the broad definition of EU-SILC. This approach uses Household Budget Survey definition of urban and rural and defines a farm household as any household in which the head of household is a farmer or the head of household is a retired farmer and there is at least one other farmer in the household***

Figure 5.4 and Table 5.8 present the 'at risk of poverty' rates in different NUTS 3 regions in Ireland from 2010 to 2017. This provides an illustration of how poverty levels vary by region. On average the Border region had the highest at risk of poverty rate over the period at 22.1%, while Dublin had the lowest, at 10.9%. Consistently throughout the period Dublin had the lowest at risk of poverty rate. While the rate in Dublin has marginally increased over that time period (by 0.3%) reductions in the at risk of poverty rate were observed in the Midland, South-East, Mid-West and South-West regions, while in all other regions increases were observed.

[41] Poverty is defined using the 'At risk of poverty' measure which means having an income of less than 60% of national mean equivalised disposable income defined using EU definition of income and OECD equivalence scale

**Figure 5.4: At Risk of Poverty Rate by Region, 2010-2017**




***Source: CSO - SIA20: Income and Poverty Rates by Region, Year and Statistic.***
***Note: At risk of poverty at 60% level using national definition of income and national equivalence scale.***

**Table 5.8: At Risk of Poverty Rate by Region, 2010-2017**

| Region | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| Border | 13.7 | 19.8 | 22.7 | 28.6 | 23.8 | 21.8 | 20.5 | 25.7 |
| Midland | 16.8 | 22.3 | 23.2 | 19.1 | 17 | 15.6 | 18.9 | 14.2 |
| West | 12.1 | 19.9 | 16.7 | 18.8 | 21.9 | 19.5 | 22.7 | 18.4 |
| Dublin | 11.4 | 9.5 | 10.7 | 9.5 | 10.5 | 12.2 | 11.6 | 11.7 |
| Mid-East | 16.3 | 13.5 | 16.2 | 16.1 | 16.7 | 16.5 | 16 | 14.5 |
| Mid-West | 15.8 | 13.7 | 19 | 16 | 20.9 | 14.8 | 14.1 | 12.9 |
| South-East | 15.7 | 19.5 | 21.1 | 19.7 | 17 | 19 | 18.1 | 18.3 |
| South-West | 19.9 | 20.6 | 19.6 | 17.3 | 18.3 | 18.8 | 18 | 18.7 |

***Source: CSO - SIA20: Income and Poverty Rates by Region, Year and Statistic.***
***Note: At risk of poverty at 60% level using national definition of income and national equivalence scale.***

In considering the impact of RDP on poverty objectives of relevance are the ANC and LEADER measures. ANC is primarily an income support for farmers who face natural constraints (in terms of land quality) in the operation of their farms. This support is likely to be the most relevant in terms of support for those on low income.[42] The regional analysis of ANC beneficiaries is shown in Table 5.9 and highlights that the majority of ANC beneficiaries are in the Border and West regions. These are the two regions that typically have the highest levels of 'at risk of poverty'. We estimate that around 16% of households in the Border regions are in receipt of support from the ANC. For the Western region, this figure is nearly 20%. ANC support is worth, on average, around €2,000 to each farm.

[42] This is in terms of Pillar II supports. This does include Pillar I direct payment support which is also likely to have a significant impact.

| Table 5.9: No. of Beneficiaries Supported by Region (ANC & LEADER) | | | |
|---|---|---|---|
| **Region** | **2014-2018 (ANC)** | **2014-2018 (LEADER)** | **% of Total** |
| Border | 23,097 | 291 | 23.8% |
| Dublin | 140 | 43 | 0.2% |
| Mid-East | 4,063 | 127 | 5.9% |
| Midlands | 8,484 | 219 | 10.4% |
| Mid-west | 12,600 | 278 | 13.0% |
| South East | 4,883 | 216 | 5.2% |
| South-West | 13,663 | 259 | 14.0% |
| West | 26,961 | 190 | 27.6% |
| ***Source: Indecon analysis of DAFM data*** | | | |

The figures shown in the next table highlight the increase in rural employment rate, the decline in rural poverty and the increase in rural GDP. The comparison with national data however demonstrates the scale of challenge faced by RDP. While the overall employment rate in rural areas increased and poverty rates declined not all of this can be attributed to the RDP.

| Table 5.10: CAP Impact Indicators to Rural economy | | | | |
|---|---|---|---|---|
| | **Rural Areas** | | **State** | |
| **Indicators** | **2014** | **2018** | **2014** | **2018** |
| Employment Rate | 62.4% | 67.8% | 63.1% | 68.6% |
| Degree of Poverty | 19.7% | 17.1%* | 13.1% | 13.6%* |
| Rural GDP per capita | 25,200 | 28,400* | 42,000 | 61,200* |
| Population (15-64) | 1,273,500 | 1,249,100 | 3,061,200 | 3,175,800 |
| ***refers to 2017 data as this is the latest available data***<br>***Source: Indecon Analysis of Eurostat data*** | | | | |

## 5.4 Technical Assistance (CEQ 20)

A total of €3.3 million has been spent on the technical assistance recorded under M20 (see Table 5.11). This is 40% of the total target spending of over €8 million. Of the total spending, NRN spending was around €1.26 million at the end of 2018. A consortium led by the Irish Rural Link and supported by The Wheel, NUI Galway and Philip Farrelly and Co. was appointed by the Department of Agriculture, Food and the Marine to run Ireland's NRN. The NRN aims to:

- Increase the involvement of stakeholders in the implementation of rural development;
- Improve the quality of implementation of rural development programmes; and
- Foster innovation in agriculture, food production, forestry and rural areas.

The current consortium was only appointed in January 2016. This makes a formal evaluation of the effectiveness of the network difficult as many of impacts of the NRN are only likely to emerge in the next few years. The NRN is particularly important for publicising the European Innovation

Partnerships (EIPs) which require a strong network to promote them and attract significant number of participants. The level of expenditure on the NRN so far has been relatively small. The majority of spend occurred in 2017 and 2018 and nearly half of the total expenditure on the NRN was spent in 2018.

**Table 5.11: RDP Funding Input for Technical Assistance**

| Support | 2014-2017 | 2018 | 2014-2018 | Planned Output |
|---|---|---|---|---|
| Total Public Expenditure – Admin Costs (€ Millions) | 0.77 | 0.36 | 1.13 | **8.14*** |
| Total Public Expenditure – Other Costs (€ Millions) | 0.68 | 0.26 | 0.94 | |
| Total Public Expenditure – NRN (€ Millions) | 0.64 | 0.61 | 1.26 | |
| ***Total Public Expenditure – non NRN+NRN (€ Millions)*** | ***2.1*** | ***1.2*** | ***3.3*** | |
| ****Total Budget Allocation for Technical Assistance*** | | | | |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | |

In terms of the grant outputs, Table 5.12 shows outputs of the NRN support. This includes setting up of thematic and analytical exchanges, communication tools such as events, project examples collected and disseminated, publication of leaflets, and number of ENRD activities in which NRN participated. At the end of 2018, a total of 34 thematic and analytical exchanges were set up with the support of NRN. Amongst these exchanges, 16 were set up through consultation with stakeholders and 18 through thematic working groups. In terms of communication, 57 events were organised as a result of NRN support and 285 projects were disseminated. There were 52 publications including leaflets, newsletter and magazines.

**Table 5.12: NRN activities for Technical Assistance**

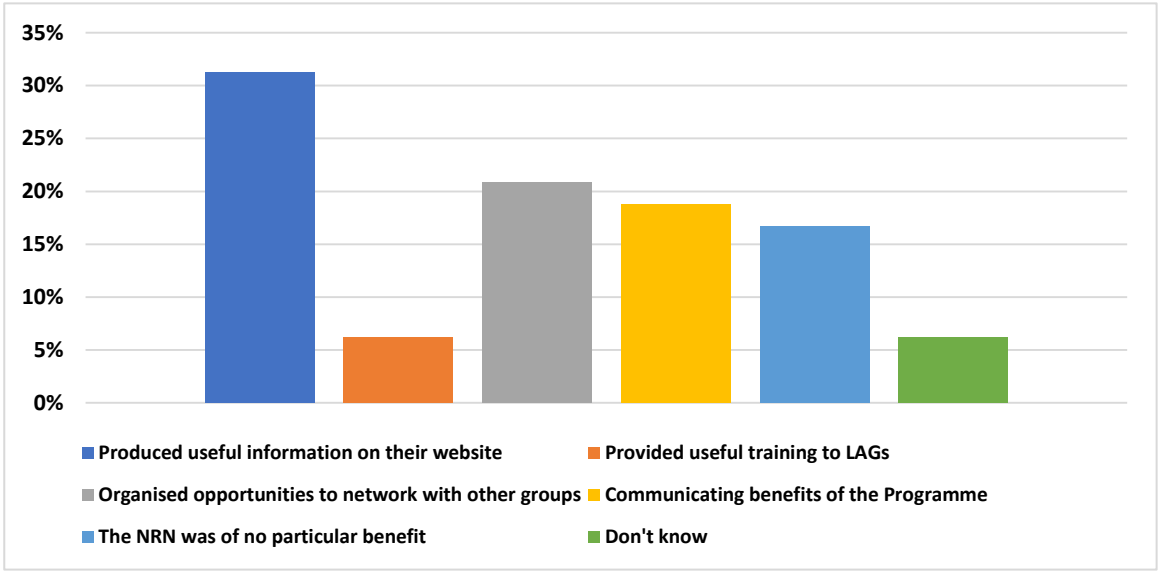
| Support | 2014-2017 | 2018 | 2014-2018 |
|---|---|---|---|
| Number of thematic and analytical exchanges set up with the support of NRN- Consultation with Stakeholder | 8 | 8 | 16 |
| Number of thematic and analytical exchanges set up with the support of NRN- Thematic Working Groups | 12 | 6 | 18 |
| Number of NRN communication tools- Events organized by NRN | 48 | 9 | 57 |
| Number of NRN communication tools- Websites, social media, etc. | 35 | 23 | 58 |
| Number of NRN communication tools- Projects examples collected and disseminated by NRN | 165 | 120 | 285 |
| Number of NRN communication tools- Publications: leaflets, newsletters, magazines including e-publications | 35 | 17 | 52 |
| Number of ENRD activities in which the NRN had active contribution | 18 | 10 | 28 |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | |

NRN outputs in 2018 are outlined in Table 5.13.

| Table 5.13: NRN Outputs (2018) | |
|---|---|
| **Support** | **2018** |
| Public and private Agricultural advisors engaging with the NRN | 702 |
| No. of case studies published by NRN | 77 |
| No. of Rural stakeholders attending NRN events | 3,189 |
| Number of followers on social media | 5,900 |
| ***Source: Indecon Analysis of NRN Data*** | |

The survey of LEADER groups highlighted the benefits of the NRN to the groups, particularly in retrieving useful information from their website and help in organising networking with other groups, and communicating the benefits of the programme, as shown in Figure 5.5.

**Figure 5.5: Main Benefits of NRN to LEADER Groups**




***Note: Respondents could choose multiple benefits of the NRN***
***Source: Indecon survey***

Overall, the NRN provides information to both LEADER and farmer beneficiaries. It is an important resource which includes information on the various elements of the RDP. It is likely to be particularly useful in establishing the visibility of measures such as the EIPs. The technical assistance programme is also used to support the evaluation of the Programme. Ensuring that EU and national funds are effectively used is critical given the need to maximise the benefits of scarce resources.

## 5.5 Summary of findings

- A number of different economic models have been employed to analyse the wider programme-level impacts of the RDP. These include a Bio-Economy Input-Output model and a two-region Input-Output model of the Irish economy. The supply-side impacts of RDP support were also examined.
- Indecon has estimated that around 86% of the direct and indirect benefit of RDP expenditure is within 35km of the beneficiaries thereby primarily benefitting the rural economy.
- Our estimates using a regional input-output model suggests that the expenditure impacts of RDP have resulted in approximately 4,881 jobs nationally annually of which 4,178 are estimated to be in the rural economy.
- The RDP explicitly supports the rural economy and many of the areas with the most support are likely to have the highest 'at risk of poverty' rates. Indecon's analysis suggest that the RDP expenditure had positive impact on reducing poverty levels and increasing the employment rate in rural areas.
- Most of the expenditure impacts are estimated to have benefited local communities. The estimated overall rural employment impact suggests that without the RDP, employment in rural areas would have been significantly reduced. Indecon accepts that wider policy measures outside of the RDP are also likely to be required to support rural and regional development.

# 6 Evaluation of Agri-Environmental related Priority Areas

## 6.1 Introduction

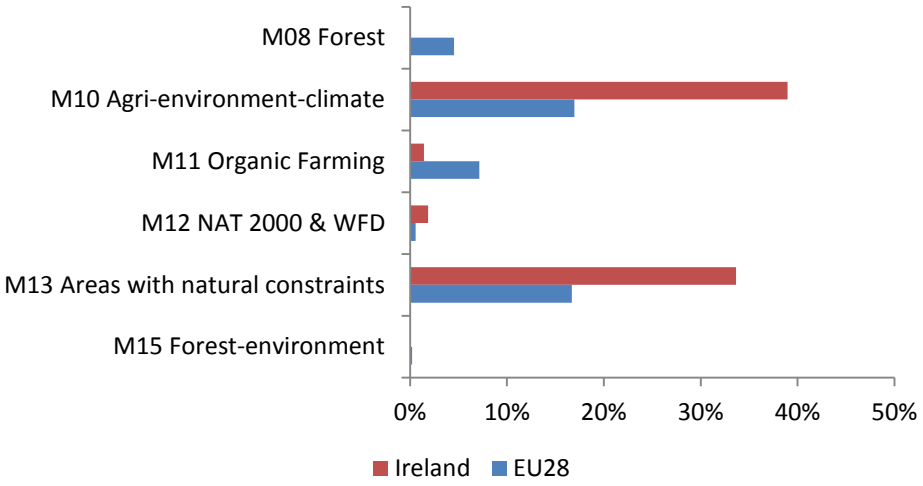
Measures supported under Priority Areas 4 and 5 are focussed on the overall CAP objective of ensuring sustainable management of natural resources and climate management. The main measures under Priority Areas 4 and 5 include Green, Low-Carbon, Agri-Environment Schemes (GLAS), Beef Data and Genomics Programme (BDGP) and Areas of Natural Constraint (ANC). These three measures account for nearly 68% of the overall RDP budget. Other schemes contributing to Priority Areas 4 and 5 include the Organic Farming Scheme, the Burren Programme, the locally-led European Innovation Partnership Operational Groups and the GLAS Traditional Farm Building Scheme. A summary of the key measures under Priority Areas 4 and 5 are shown in Table 6.1. There are also significant links to some of the measures that also directly impact on competitiveness such as the agri-environment aspects of the EIPs and TAMS II. Elements of Measure 1 that relate to BDGP and GLAS are also directly relevant.

**Table 6.1: Measure, targeted Focus Areas and Priority Areas**

| Measures | Submeasures | Focus Areas |
|---|---|---|
| M7: Basic Services and village renewal in rural areas | M7.6: GLAS Traditional farm buildings | FA4A |
| M10: Agri-environment-climate | M10.1: GLAS and GLAS+ | FA4A, FA4B, FA4C, FA5D, FA5E |
| | M10.1: BDGP | FA5D |
| | M10.1: The Burren Programme | FA4A |
| M11: Organic Farming | M11.1 and M11.2: The organic farming scheme | FA4A, FA4B, FA4C |
| M12: Natura 2000 and WFD (Transitional) | M12.1: Natura 2000 and WFD | FA4A, FA4B, FA4C |
| M13: Payments to areas facing natural or other specific constraints | M13.2: Areas of Natural Constraints (ANCs) | FA4A |
| | M13.3: Specific support for offshore island farming | FA4A |
| M16: EIPs | M16.1: HH / FWPM / Environmental & Climate Change Projects | FA4A, FA4B, FA4C,FA5A FA5B, FA5C, FA5D, FA5E |
| ***Source: Indecon Review of RDP Documents*** | | |

A summary of how the Irish RDP compares to the EU average in relation to expenditure on Priority Areas 4 and 5 is shown in Figure 6.1. This highlights a number of differences between Ireland and the rest of the EU-28. One notable feature is that the Irish RDP does not avail of Measures 8 and 15 which relate to forestry. Moreover, a significantly larger budget share is allocated to agri-environment measures and support for areas with natural constraints. Lastly, the RDP in Ireland has a lower percentage of its budget allocated to organic farming compared to the EU 28 average.

**Figure 6.1: RDP Expenditure on Measures in Priority Areas 4 & 5 - Ireland v EU28 (As a Percentage of Overall RDP Expenditure)**




***Note: Note that Ireland typically promotes forestry outside of CAP support***
***Source: Indecon analysis***

The key target indicators that capture the results of the Measures under Priorities 4 and 5 are shown in Table 6.2. Our analysis indicates that many of these RDP target indicators are likely to be met or exceeded by the end of the programme. These targets typically relate to GLAS and to a lesser extent the Organic Farming Schemes. These target indicators measure the key activities that underpin the progress towards achieving the key agri-environment objectives of the RDP.

**Table 6.2: RDP Target Indicators for Priority 4 and 5 objectives**

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| T9- % of holdings under biodiversity/landscape contracts | 16.97% | 1.24% | 18.21% | 20.77% |
| T10- % of holdings under water management contracts | 18.40% | 2.00% | 20.4% | 20.91% |
| T12- % of holdings under soil management contracts | 16.39% | 1.91% | 18.3% | 18.08% |
| T15 - total investment in energy efficiency** | Not applicable | Not applicable | Not applicable | |
| T17- Number of LUs under contracts to reduce GHG/ammonia emissions | 26,082 | 44,264 | 70,346 | 11,500 |
| T18- % of land under contracts Targeting a reduction of GHG/ammonia emissions | 11.17% | 1.28% | 12.45% | 10.79% |
| T19- % of agricultural and forest land under management to foster carbon conservations | 0.08% | | 0.08% | 0.32% |

***** TAMS II has since added a call for Solar PV technology in 2019***
***Source: Indecon Analysis of DAFM Indicator Data.***

The measures under P4 and P5 are critical in terms of the scope of improvement across many different habitats that are related to agriculture. The assessment from NPWS outlines a number of areas which are stable as well as one which is improving and a number are declining.

**Table 6.3: Analysis of Habitats that are likely to relate to Agriculture**

| Code | Habitat name | Agricultural type | Status | Trend |
|---|---|---|---|---|
| 1330 | Atlantic salt meadows | Marginal | Inadequate | Declining |
| 1410 | Mediterranean salt meadows | Marginal | Inadequate | Declining |
| 2130 | **Fixed dunes (grey dunes)*** | Agricultural | Bad | Declining |
| 2140 | **Decalcified empetrum dunes*** | Marginal | Favourable | Stable |
| 2150 | **Decalcified dune heath*** | Marginal | Inadequate | Stable |
| 2170 | Dunes with creeping willow | Marginal | Inadequate | Stable |
| 2190 | Dune slack | Marginal | Inadequate | Declining |
| 21A0 | **Machair*** | Agricultural | Inadequate | Stable |
| 3180 | **Turloughs*** | Agricultural | Inadequate | Stable |
| 4010 | Wet heath | Marginal | Bad | Declining |
| 4030 | Dry heaths | Marginal | Bad | Stable |
| 4060 | Alpine and subalpine heath | Marginal | Bad | Improving |
| 5130 | Juniper scrub | Marginal | Favourable | Stable |
| 6210 | **Orchid-rich calcareous grassland*** | Agricultural | Bad | Declining |
| 6230 | **Species-rich Nardus upland grassland*** | Agricultural | Bad | Stable |
| 6410 | Molinia meadows | Agricultural | Bad | Declining |
| 6430 | Hydrophilous tall herb | Marginal | Bad | Declining |
| 6510 | Lowland hay meadows | Agricultural | Bad | Declining |
| 7130 | **Blanket bog (active)*** | Agricultural | Bad | Declining |
| 7150 | Rhyncosporion depressions | Marginal | Bad | Declining |
| 8110 | Siliceous scree | Marginal | Inadequate | Stable |
| 8120 | Eutric scree | Marginal | Inadequate | Stable |
| 8210 | Calcareous rocky slopes | Marginal | Inadequate | Stable |
| 8220 | Siliceous rocky slopes | Marginal | Inadequate | Stable |
| 8240 | **Limestone pavement*** | Agricultural | Inadequate | Stable |

***Source: NPWS – 2019 Article 17 Report***

The European Commission[43] has recently published an evaluation of the impact of the Common Agricultural Policy on climate change and GHG emissions. This report included a case study on Ireland. The report has a number of relevant broad conclusions about the how the RDP in Ireland contributes to reducing greenhouse gas emissions. The report is positive about the value of the training supports (including development of carbon navigators) offered to farmer beneficiaries and how different measures (M1, M4 and M10) are complementary to each other to achieve improved climate outcomes under GLAS. The report also suggests that the use of the Carbon Navigators to bolster wider coherence and knowledge sharing has been positive. The report also includes estimates of mitigation potential from various measures supported by the RDP. The analysis indicates that Measure 10.1 has the largest impact on reducing $CO_2$ equivalent emissions with an estimated reduction of between 6%-39% compared to the baseline. The next largest impacts relate to organic farming (Measure 11). The

[43] European Commission (2019) "Evaluation of the CAP on climate change and greenhouse gas emissions" Available at https://ec.europa.eu/agriculture/content/evaluation-cap-climate-change-and-greenhouse-gas-emissions_en

report noted that while the BDGP seeks to reduce GHG emissions per head of livestock it does not address wider questions around climate-proofing farming. These simulations also indicated that Ireland was one of seven member states with GHG savings greater than the EU-28 average.

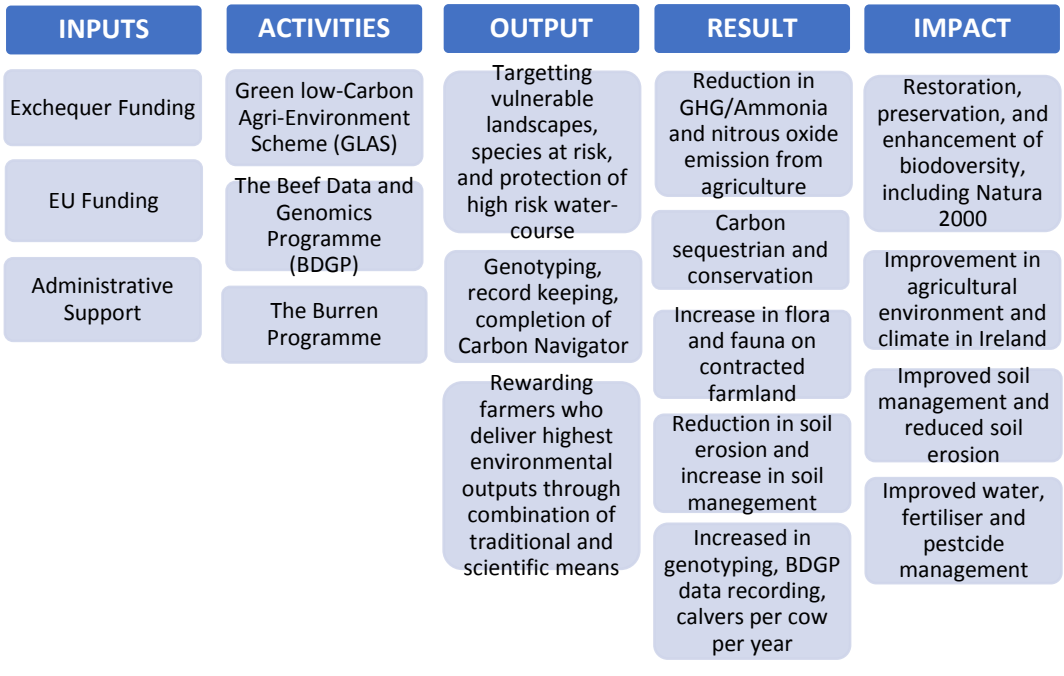
## 6.2 Agri-Environment Climate Schemes (Measure 10)

Measure 10 of RDP 2014-2020 consists of three key areas under Submeasure 10.1 and one transitional submeasure, with a total allocation of over €1,531 million. The Submeasures under this scheme include:

- Submeasure 10.1: Green Low-Carbon Agri-Environment Scheme (GLAS);
- Submeasure 10.1: The Beef Data and Genomics Programme (BDGP);
- Submeasure 10.1: The Burren Programme; and
- Transitional REPS AEOS support.

Measure 10 addresses areas under Priorities 4 and 5 in relation to preservation of eco-systems, and promotion of resource efficiency and climate resilience in agriculture. A Programme Logic Model for M10 is shown in Figure 6.2 with activities spanning across areas under Submeasure 10.1. There are complementarities between GLAS and BDGP and many farmers will avail of both supports. The inputs, activities, and outputs shown in the PLM are discussed separately for each area; while the results and impacts are discussed at the Measure level. Both GLAS and BDGP are facilitated by training supports that come under Measure 1 of the RDP. These are discussed below.

**Figure 6.2: Programme Logic Model - Measure 10**




***Source: Indecon***

**Background to Training in support of GLAS and BDGP (Measure 1.1)**

One aspect of the Agri-Environment Climate schemes (GLAS & BDGP) is that training support was provided. For GLAS training, beneficiaries are required to attend training courses that last for six hours and include informational topics such as:

- Introduction to the GLAS scheme, its regulatory basis, the objectives of the scheme and funding;
- Individual commitments covering areas such as nutrient management, farming practices, record keeping, delivery timelines, etc.;
- Controls, inspections and sanctions;
- Consequences of agricultural pollution and its avoidance (including climate change awareness, and the synergies between mitigation and adaptation); and
- Appreciation of the importance and preservation of Natura 2000 sites and important bird habitats, wildlife habitats, etc.

The aim of BDGP training is to optimise the delivery of BDGP and consists two elements: General BDGP training and Carbon Navigator training. The General BDGP training requires farmers to attend a training course in which information regarding farm requirements at individual level is given. The general BDGP training aims to increase the participant's knowledge of genomics and breeding selection and is designed to provide:

- Introduction to the BDGP, its regulatory basis, the objectives of the scheme and funding;
- Information on the individual actions covering areas such as data collection, genotyping, genomic indices and the bull/heifer replacement strategy;
- Information on controls, inspections and sanctions;
- Training on the understanding and optimal use of breeding indices for maternal breeding strategies;
- Training on the importance of data collection and maternal breeding traits, and the linkage with carbon efficiency at scheme level; and
- Training on how to source replacements.

As shown in Table 6.4, the total public expenditure made on GLAS training at the end of 2018 is €11.3 million. The comparable figure for BDGP is €10.4 million. The public spending so far represents around 83% of the total target of €26.1 million.

**Table 6.4: RDP Funding Input for GLAS/BDGP Training (P4 and FA5D)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure (€ Millions) – GLAS training | 0.06* | 4.16 | 7.12 | 11.33 | 26.10 |
| Total Public Expenditure (€ millions) – BDGP training | 8.47 | 1.59 | 0.36 | 10.42 | |

***Transitional spending on REPS/AEOS training***
***Source: Indecon Analysis of DAFM Indicator Data***

### Output of GLAS/BDGP Training

The GLAS training entails payment of €238 per participant, of which €158 is towards farmer costs of attending the meeting. For trainers, the payment is €80 per DAFM validated attendee. Each participating BDGP farmer receives a payment of €166 for attendance at the four-hour long session. Furthermore, a total of 23,913 carbon navigators have been completed by the end of 2018.

**Table 6.5: RDP Output for GLAS Training (P4)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| No. of actions/operations supported- GLAS | 2 | 2 | 2 | 2 | |
| No. of training days given (day = 8hrs) - GLAS | 653* | 19,723 | 17,075 | 37,451 | |
| No. of training participants - GLAS | 556* | 26,298 | 22,765 | 49,619 | 50,000 |
| No. of actions/operations supported – BDGP | 2 | 2 | 2 | 2 | - |
| No. of training days given (day = 8hrs) – BDGP | 11,904 | 443 | 611 | 12,958 | - |
| No. of training participants – BDGP | 23,807 | 887 | 1,222 | 25,916 | 35,000 |
| No. of Carbon Navigators - BDGP | 15,191 | 8,502 | 220 | 23,913 | - |

***Refers to REPS/AEOS training***
***Source: Indecon Analysis of DAFM Indicator Data***

The focus areas addressed by Focus Areas 1A (KT and training support for BDGP and GLAS) are captured by the target indicators listed in Table 6.6. This expenditure target relates to the expenditure under Measures 1, 2 and 16 that impacts on Focus Area 1A. The vast majority of this expenditure relates to Measure 1.

**Table 6.6: RDP Target Indicators for M1**

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| % of expenditure on Measures addressing Focus Area 1A | 0.78% | 0.81% | 1.61% | 3.6% |
| T3 - No. of participants trained under Measure 1, including KT, BDGP & GLAS. | 67,689 | 24,909 | 92,598 | 111,600 |

***Source: Indecon Analysis of DAFM Indicator Data***

### Submeasure 10.1: Green Low-Carbon Agri-Environment Scheme (GLAS)

The GLAS scheme of RDP is designed under Article 28 and 30 of the Rural Development Regulation and is consistent with the green vision for Irish agriculture underlined in Food Harvest 2020, Food

Wise 2025 and as promoted by Bord Bia in the Origin Green Campaign.[44] GLAS aims to deliver outcomes related to rural environment, climate change mitigation and adaption, water quality, soil quality and preservation of priority habitats. GLAS serves the objective of environmental sustainability and productivity gains of Food Harvest 2020 and aims to work within the framework of environmental sustainability under the following EU directives: [45]

- The EU Climate Change and Renewable Energy Package and Kyoto Protocol;
- The Water Framework Directive, the Groundwater Directive and the Nitrates Directive; and
- The Habitats Directive, the Birds Directive and the European target of halting the loss of biodiversity by 2020.

GLAS addresses the following focus areas/common evaluation questions:

- FA4A/4B/4C (P4): Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry;
- FA5D: To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?
- FA5E: Fostering carbon conservation and sequestration in agriculture and forestry.

*Input and Activities of GLAS*

GLAS follows a three-tiered hierarchy to ensure that the targeted and prioritised delivery of environmental benefits. It must be noted that GLAS is a targeted scheme that identifies a number of Priority Environment Assets and Priority Environment Actions for support. Tier 1 is the most important and is further divided into two sub-tiers:

- Tier 1 (a): Comprises all the Priority Environment Assets identified for support from GLAS, the targeting of vulnerable landscapes, species at risk and protection of high-status watercourse.
- Tier 1 (b): Comprises a series of Priority Environment Actions for intensive farmers, targeting climate mitigation and farmland birds.

Organic farmers also have rights to receive priority access to the schemes under Tier 1. The second most important tier is Tier 2 and is also divided into two sub-tiers:

- Tier 2 (a): Addressing water quality through protection of predetermined vulnerable water-courses.
- Tier 2 (b): Accepting proposals from farmers interested in undertaking predetermined actions against climate change and support to farmland birds.

[44] Ireland- Rural Development Programme (National). Released on 28th May, 2015. Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/OriginalVersionAdoptedMay2015100217.pdf

[45] Ibid.

Finally, Tier 3 mostly comprises complementary environmental actions consisting of actions such as the protection of hay meadows, species rich- pastures, important landscape features, stone walls, and provision for bird, bee and bat nesting facilities.[46]

The support from GLAS is through fixed value packages and has a minimum contract period of five years. Funding is provided from National Exchequer and EAFRD and amounted to over €528 million at the end of 2018. The majority funding was allocated to focus areas under P4 amounting to just under €482 million. Progress on spend has been good and expenditure for GLAS is currently 57% of the target funding of €920 million for the duration of five years of the scheme (see Table 6.7).

**Table 6.7: RDP funding input for Green Low-Carbon Agri-Environment Scheme (P4/FA5D/FA5E)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2021 |
|---|---|---|---|---|---|
| Public Expenditure - P4 (€ Millions) | 102.94 | 173.46 | 205.59 | 481.99 | 826.95 |
| Public Expenditure - FA5D (€ Millions) | 0.84 | 3.01 | 3.53 | 7.38 | 18.70 |
| Public Expenditure - FA5E (€ Millions) | 8.59 | 15.02 | 15.74 | 39.36 | 74.80 |
| ***Total Public Expenditure (€ Millions)*** | ***112.37*** | ***191.50*** | ***224.86*** | ***528.73*** | ***920.45*** |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | | |

**Output of GLAS**

The GLAS scheme provides a maximum payment of €5,000 per annum in most of the cases; however, a higher value package GLAS+ can be offered to certain farmers who have particularly demanding environmental commitments. This addition brings the total allowance up by €2,000 and it should be noted that farmers who manage endangered bird habitats qualify automatically for GLAS+. The scheme has supported 48,020 contracts as at the end of 2018 with an associated area of nearly 1.2 million hectares supported. The majority of support for GLAS has been made for actions under P4 (see Table 6.8).

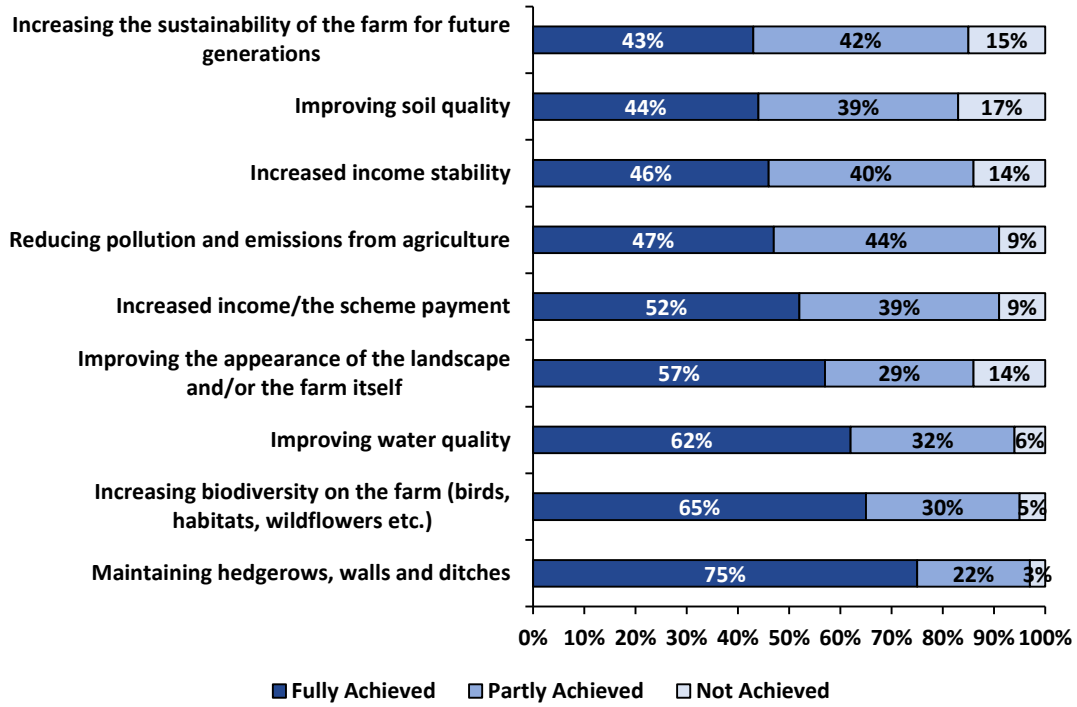
**Table 6.8: RDP outcomes for Green Low-Carbon Agri-Environment Scheme (P4/FA5D/FA5E)**

| Indicators | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| ***Priority 4*** | | | | |
| Total Area (ha) | | | 814,306 | 880,971 |
| No. of contracts supported | 17,509 | 21,034 | 28,993 | 31,400 |
| ***FA5D*** | | | | |
| Total Area (ha) | 0 | 57,799 | 236,524 | 289,764 |
| No. of contracts supported | 0 | 849 | 2,768 | 3,178 |
| ***FA5E*** | | | | |
| Total Area (ha) | 0 | 3,013 | 4,542 | 4,707 |
| No. of contracts supported | 0 | 9,093 | 12,951 | 13,442 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | |

[46] Summary of Rural Development Programme Ireland 2014-2020 (September, 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

As part of an evaluation of GLAS, undertaken by ADAS a survey of GLAS beneficiaries was completed. Some of the findings from this survey are shown in Figure 6.3. The results indicate that most of the participants rank environmental targets as having been achieved or partly achieved as result of GLAS. Over 50% of respondents suggested that GLAS led to the maintenance of hedgerows, walls and ditches, increased biodiversity of farms, improvement of water quality and visible landscape and increase in income/scheme payment.

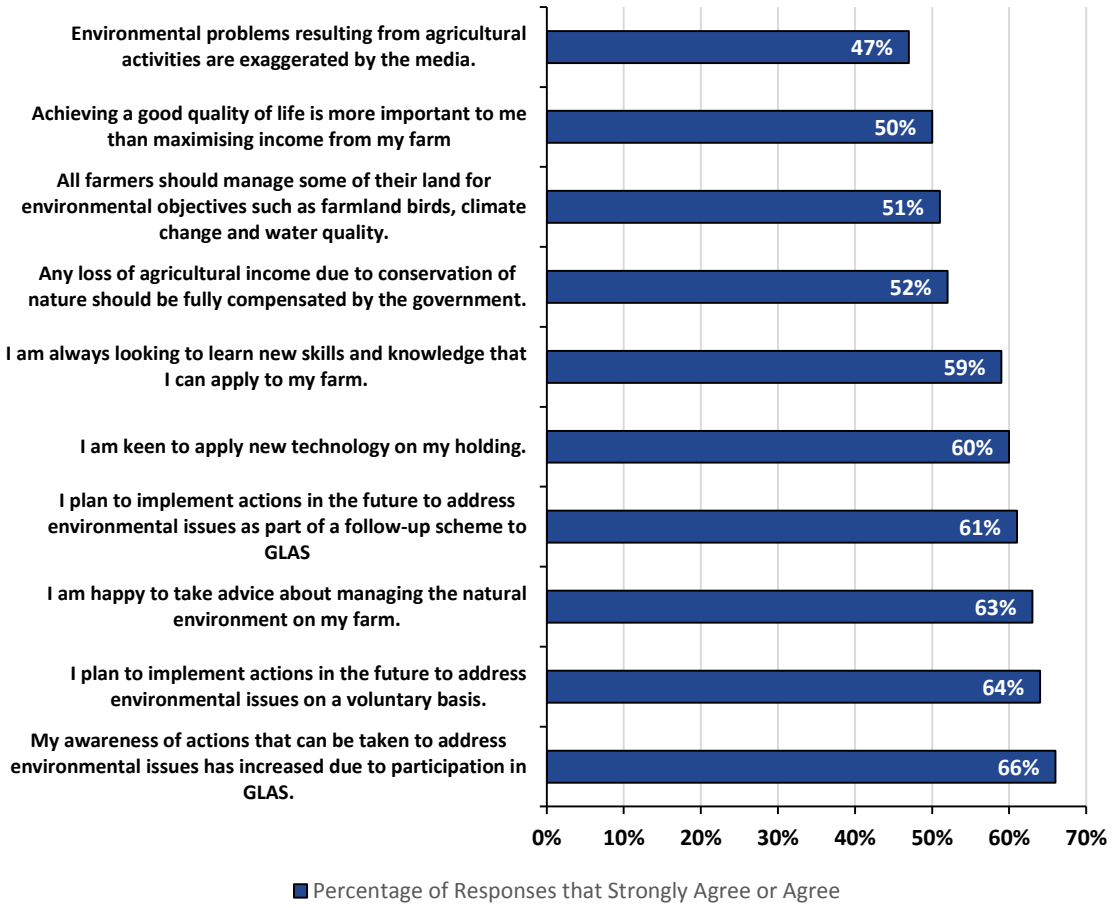
**Figure 6.3: Views of GLAS Participants on Benefits Achieved Through GLAS**




*Source: ADAS Survey of GLAS Participants*

The ADAS survey responses were generally positive and the results suggested improvement in attitudes toward farming and environment, as shown in Figure 6.4. Specifically, more than 60% of farmers agreed that GLAS led them to apply knowledge on their farm, made them attentive to implement actions to deal with environmental issues, made them open to seek advice for the farm natural environment, and increased awareness of actions that can be taken to address environmental issues. Indecon however believes that additional analysis being completed as part of the GLAS evaluation may be required before definitive conclusions on the overall impact of GLAS.

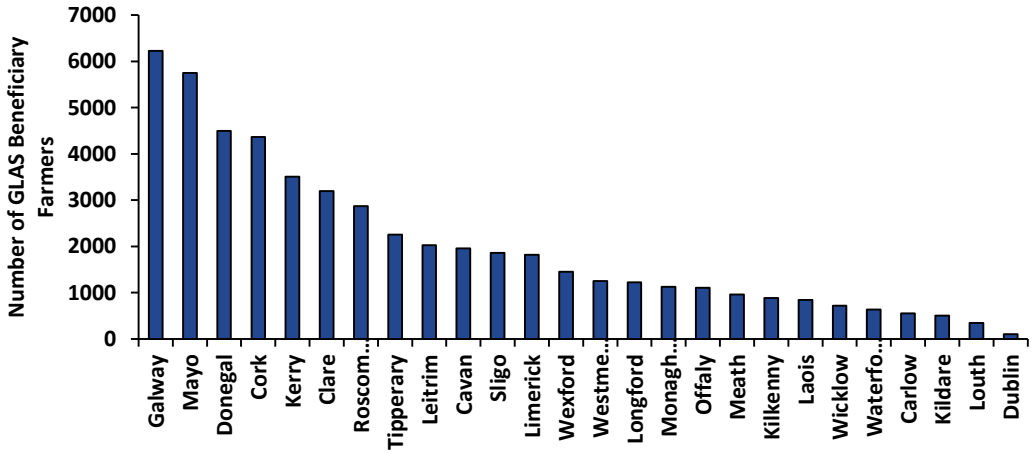
**Figure 6.4: Views of GLAS Participants on Attitudes Towards Farming and the Environment**




*Source: ADAS Survey of GLAS Participants*

The county breakdown of GLAS beneficiaries is shown in Figure 6.5, where the majority of farmers belong to western counties including Galway, Mayo, Donegal and Cork. The lowest number of GLAS farmers primarily reside in eastern counties including Carlow, Kildare, Louth, and Dublin.

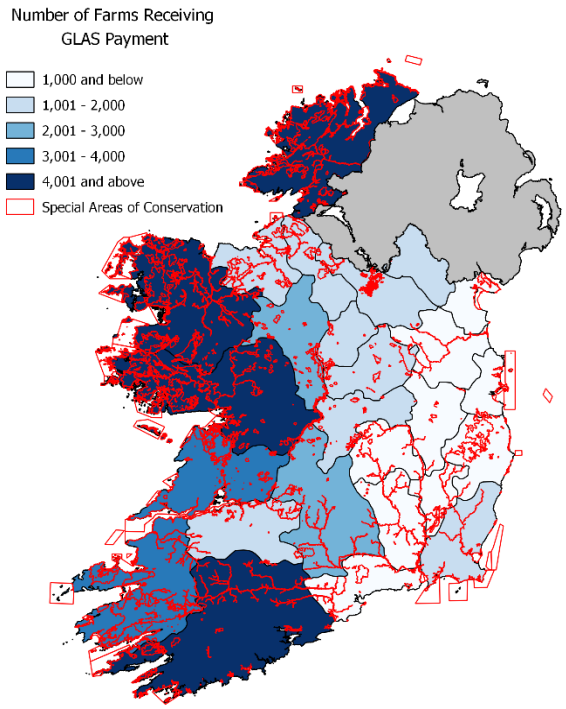
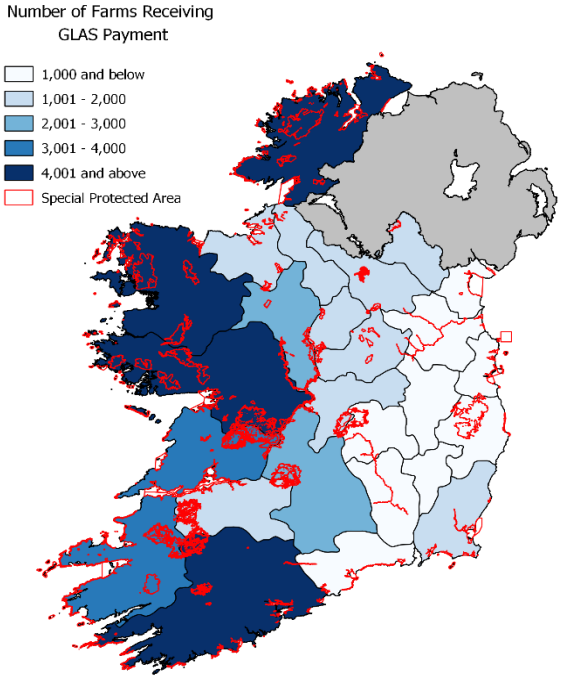
**Figure 6.5: GLAS Beneficiaries by County**




***Source: DAFM***

The county distribution of GLAS beneficiaries is presented more clearly using the geo-spatial distribution of GLAS farms in Figure 6.6. It can be concluded from spatial analysis that the distribution of GLAS is very much in line with the Special Areas of Conservation (SACs) and Special Protected Areas (SPAs); predominantly in the western, north-western, and south-western regions of Ireland.

**Figure 6.6: Number of GLAS Payments by county**

| Special Areas of Conservation (SACs) | Special Protected Areas (SPAs) |
|---|---|
|  |  |





***Source: Indecon analysis of DAFM data***

### Impact of GLAS

The NFS data provides information on GLAS beneficiaries from 2015 onwards, and as shown in Table 6.9, around 24% of the sample reports having received a GLAS payment from 2015-2017 with an average payment of around €3,700. This is likely to be related to farms only taking up GLAS during the year and not receiving a full payment for that year. Indecon understands that the average amount for all GLAS participants is higher at approximately €4,100 per annum.

**Table 6.9: GLAS Scheme Summary Statistics (2015-2017)**

| Year | Total Beneficiaries | Total Farms (N) | Beneficiary (%) | Total Payment Awarded (€) | Mean Amount of Payment (€) |
|---|---|---|---|---|---|
| 2015 | 136 | 898 | 15.1% | 261,100 | 1,919.85 |
| 2016 | 207 | 861 | 24.0% | 755,824 | 3,651.32 |
| 2017 | 298 | 861 | 34.6% | 1,360,772 | 4,566.35 |
| **Total** | **641** | **2,620** | **24.5%** | **2,377,696** | **3,709.35** |

***Source: Indecon Analysis of NFS data***
***Note: The Amounts are adjusted for Agricultural Output Price Index (2015=100). This percentage of beneficiaries in the survey is very close to the actual population estimate.***

The difference of means statistics between the recipient and non-recipients for different farm factors are shown in Table 6.10. In general, GLAS recipients have lower levels of family farm income, gross output and farm investment but have similar farm size and farmer age to non-GLAS beneficiaries.

**Table 6.10: Difference of Means Tests for GLAS Recipients vs. Non- Recipients**

| Variables | Control (GLAS=0) (N=1,979) | Treatment (GLAS=1) (N=641) | Difference (C-T) | P-Value |
|---|---|---|---|---|
| Total Land Farmed (ha.) | 64.13 | 64.44 | -0.31 | 0.91 |
| Farmer Age | 54.22 | 53.24 | 0.98 | 0.10 |
| Farm Family Income (€) | 46,687.23 | 33,331.18 | 13,356.05***[47] | 0.00 |
| Farm Gross Output (€) | 138,478.76 | 95,129.59 | 43,349.17*** | 0.00 |
| Gross Output: Crops (€) | 7,722.28 | 9,794.66 | -2,072.39 | 0.24 |
| Gross Output: Livestock (€) | 111,382.52 | 61,423.28 | 49,959.24*** | 0.00 |
| Total Labour Units | 1.41 | 1.22 | 0.19*** | 0.00 |
| Total Livestock Units | 92.10 | 69.86 | 22.24*** | 0.00 |
| Total Farm Costs (€) | 91,801.11 | 61,862.62 | 29,938.49*** | 0.00 |
| Depreciation: Machinery | 6,018.91 | 4,504.85 | 1,514.05*** | 0.00 |
| Depreciation: Buildings | 4,018.12 | 2,647.89 | 1,370.23*** | 0.00 |
| Depreciation: Land Imp. | 642.33 | 463.70 | 178.63*** | 0.00 |
| Investment: Machinery | 49,971.19 | 37,963.30 | 12,007.89*** | 0.00 |
| Investment: Buildings | 66,556.94 | 41,182.60 | 25,374.34*** | 0.00 |
| Investment: Livestock. | 100,001.13 | 77,497.57 | 22,503.55*** | 0.00 |
| Value of Fertilisers (€) | 9,772.98 | 6,404.02 | 3,368.96*** | 0.00 |

***Note: C refers to the Control Group; T refers to the Treatment Group***
***Source: Indecon Analysis of NFS Data***

[47] *** indicates that the difference is statistically significant at the 1% confidence interval. Statistical significance is the likelihood that the difference between the two groups is not due to random chance. Statistical significance is way of a testing whether an observed statistic is reliable.

The Fixed Effects[48] ('FE') estimates are reported in Table 6.11 (for NFS data from 2015 onwards), suggesting a positive significant relationship between GLAS benefits and log of agricultural output and productivity. However, the magnitude is small and is significant at only 5% and 10% levels. We would urge caution in the interpretation of these results. Our more detailed counterfactual econometric model indicates no statistically significant relationship between the GLAS payment and output or productivity.

**Table 6.11: GLAS Payment Fixed Effects Results for Output and Productivity**

| Variables | (1) Log Output GLAS FE Model | (2) Log Productivity GLAS FE Model |
|---|---|---|
| **GLAS payment** | **0.0275**** | **0.0289*** |
| | **(0.0129)** | **(0.0153)** |
| Log of Labour Units | 0.118*** | |
| | (0.0397) | |
| Log of Farm Size | 0.354 | 0.470* |
| | (0.217) | (0.256) |
| Log of Farm Size Sq. | -0.00997 | -0.0417 |
| | (0.0283) | (0.0334) |
| Year (Time Trend) | 0.0466*** | 0.0408*** |
| | (0.00428) | (0.00505) |
| Farmer Age | -0.000955 | 0.00143 |
| | (0.00265) | (0.00312) |
| Farmer Age Sq. | -7.92e-06 | -2.79e-05 |
| | (2.96e-05) | (3.49e-05) |
| Log of Capital Depreciation | 0.113*** | 0.0940*** |
| | (0.0262) | (0.0309) |
| Log of Fuel | 0.0411*** | 0.0359*** |
| | (0.00780) | (0.00921) |
| Constant | -84.88*** | -73.33*** |
| | (8.679) | (10.23) |
| Observations | 2,047 | 2,047 |
| R-squared | 0.210 | 0.103 |
| Number of Farm Ids | 790 | 790 |
| Soil Group FE | Yes | Yes |
| Farm System | Yes | Yes |
| Time Trend | Yes | Yes |

***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

In order to examine the impacts of GLAS, Indecon undertook econometric counterfactual modelling. The results are presented in Table 6.12. The causal estimates obtained from Regression Adjustment ('RA'), and Propensity Score Matching ('PSM') techniques measuring the impact on output and productivity are insignificant. This was expected given the limited time since the payments came into effect and the overall agri-environmental objectives of the scheme.

[48] This econometric approach is discussed further in section 3.8. Essentially, it controls for time invariant impacts but does not explicitly account for selection effects. Typically, the results imply correlation rather than causation.

| Table 6.12: Impact of GLAS Payment on Output and Productivity | | | |
|---|---|---|---|
| **Estimation Model** | **Outcomes Variables** | **ATET** | **Observations** |
| **Regression Adjustment Model (RA)** | Log Output | 0.0103<br>(0.0168) | 2,047 |
| | Log Productivity | 0.0223<br>(0.0217) | 2,047 |
| **Propensity Score Matching** | Log Output | 0.0527<br>(0.0390) | 2,042 |
| | Log Productivity | 0.0683<br>(0.0439) | 2,067 |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***<br>***Indecon Analysis on NFS Data.*** | | | |

The results of Indecon's modelling suggest a positive relationship between GLAS payments and the CAP Impact Indicators relating to incomes of around 7% - 8% as shown in Table 6.13. In relation to total factor productivity ('TFP'), the FE results suggests a negative relationship between GLAS and change in farm TFP, although the coefficient is not significant.

| Table 6.13: GLAS Payment Fixed Effects Results for CAP Indicators | | | |
|---|---|---|---|
| **Variables** | **(1)**<br>**Ag. Entre. Income**<br>**GLAS FE Model** | **(2)**<br>**Ag. Fact. Income**<br>**GLAS FE Model** | **(3)**<br>**TFP**<br>**GLAS FE Model** |
| **GLAS payment** | **0.0770***** | **0.0804***** | **-0.0365** |
| | **(0.0210)** | **(0.0200)** | **(0.0440)** |
| Log of Labour Units | -0.910*** | -0.855*** | |
| | (0.0648) | (0.0617) | |
| Log of Farm Size | 0.854** | 1.094*** | 0.799 |
| | (0.354) | (0.338) | (1.086) |
| Log of Farm Size Sq. | -0.0391 | -0.0721 | -0.0765 |
| | (0.0463) | (0.0441) | (0.131) |
| Year (Time Trend) | 0.0716*** | 0.0711*** | -0.0372** |
| | (0.00701) | (0.00668) | (0.0144) |
| Farmer Age | -0.00379 | -0.00348 | -0.0104 |
| | (0.00427) | (0.00407) | (0.00812) |
| Farmer Age Sq. | 9.43e-06 | 6.57e-06 | 5.44e-05 |
| | (4.80e-05) | (4.57e-05) | (8.89e-05) |
| Log of Capital Depreciation | -0.164*** | -0.0735* | -0.0963 |
| | (0.0429) | (0.0408) | (0.0924) |
| Log of Fuel | 0.0177 | 0.0179 | -0.0339 |
| | (0.0127) | (0.0121) | (0.0237) |
| Constant | -134.4*** | -134.7*** | 74.61** |
| | (14.21) | (13.54) | (29.22) |
| Observations | 2,041 | 2,046 | 777 |
| R-squared | 0.242 | 0.247 | 0.053 |
| Number of Farm Ids | 787 | 790 | 381 |
| Soil Group FE | Yes | Yes | Yes |
| Farm System | Yes | Yes | Yes |
| Time Trend | Yes | Yes | Yes |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***<br>***Indecon Analysis on NFS Data.*** | | | |

The ATET[49] estimates from the counterfactual RA, and PSM models are shown in Table 6.14. Broadly, the results follow FE findings with a positive impact of GLAS on income ranging between 7% to 10%. Also, the results for TFP stay insignificant. Intuitively, the results were expected as with only three years of data from the time the scheme started, it was unlikely that noticeable differences would be obtained for farm level output or productivity. As well as this, the nature of the support is unlikely to have any significant impacts on output or productivity.

The positive impact of GLAS on entrepreneurial income and factor income may be explained as GLAS payments are direct cash transfers. It should be noted that GLAS payments are based on costs incurred and income foregone to deliver the environmental actions on the farm. Of note is that the average GLAS payment in the NFS sample is around €3,700 which works out at around 11% of the average family farm income. Thus, we would expect similar farmers to have different income levels based on whether they received the GLAS payment.

**Table 6.14: Impact of GLAS Payment on CAP Indicators**

| Estimation Model | Outcomes Variables | ATET | Observations |
|---|---|---|---|
| **Regression Adjustment Model (RA)** | Ag. Entre. Income | 0.0728*** (0.0281) | 2,041 |
| | Ag. Fact. Income | 0.0791*** (0.0276) | 2,046 |
| | TFP | -0.0453 (0.0277) | 777 |
| **Propensity Score Matching** | Ag. Entre. Income | 0.102** (0.0455) | 2,036 |
| | Ag. Fact. Income | 0.0514 (0.0454) | 2,041 |
| | TFP | -0.0195 (0.0337) | 774 |

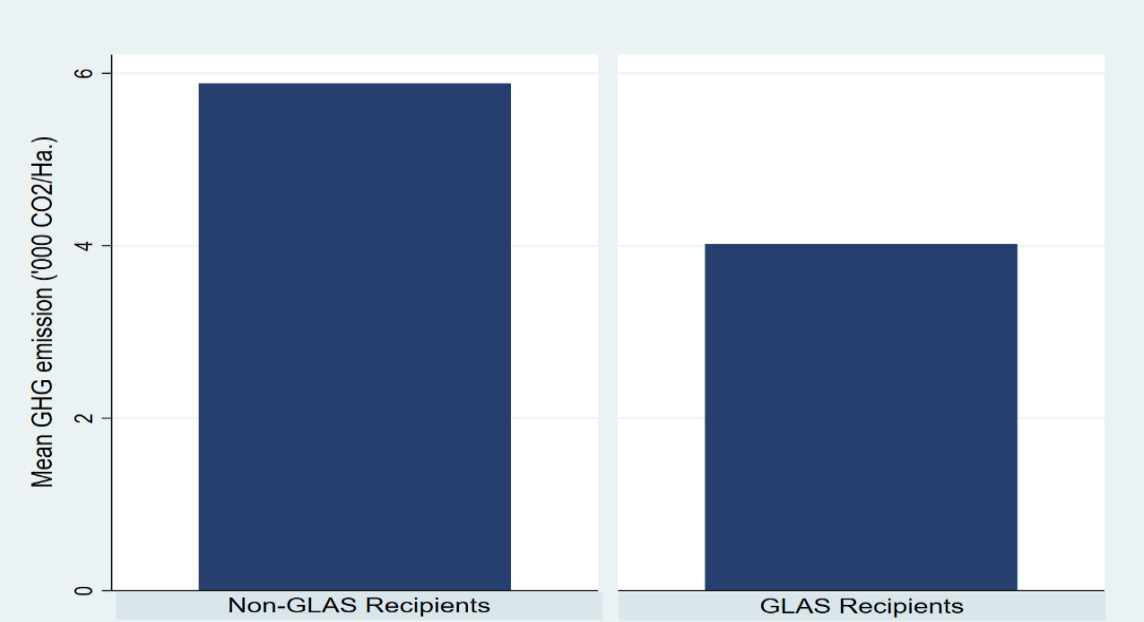
***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

As part of this analysis, we have also used data in the NFS to estimate the difference in GHG emissions between GLAS and non-GLAS farms. These results are shown in Figure 6.7 and highlight that farmers who participate in GLAS appear likely to have somewhat lower GHG emissions than non-participants. However, Indecon however notes this does not take account of the fact that the difference in GHG emissions may reflect other factors. This is partly supported from the difference of means t-test presented earlier where non-GLAS farms are much larger than GLAS farms in terms of gross farm output, livestock output and family farm income. Hence, the GHG emissions on farms is likely to be driven by output which masks estimation of any causal impact of GHG for GLAS farms. For this reason, we also looked a comparison of GLAS and non-GLAS farms when all dairy farms are removed from the analysis (see Figure 6.8). We have also considered the possibility of undertaking counterfactual analysis with the level of GHG emissions as the key outcome variable. However, there is no GHG variable in the current NFS and Indecon have created this variable based on applying GHG emission

[49] Average Treatment Effect on the Treated is the estimate of the net impact of the payment on the beneficiaries compared to the non-beneficiaries.

factors[50] to farm-level output.[51] Thus, the only variation in GHG emissions at the farm level will be based on different levels and type of production and so a comprehensive econometric counterfactual analysis is not feasible.

**Figure 6.7: Average Greenhouse Gas Emissions per ha ('000 $CO_2$ equivalents/Ha.)**



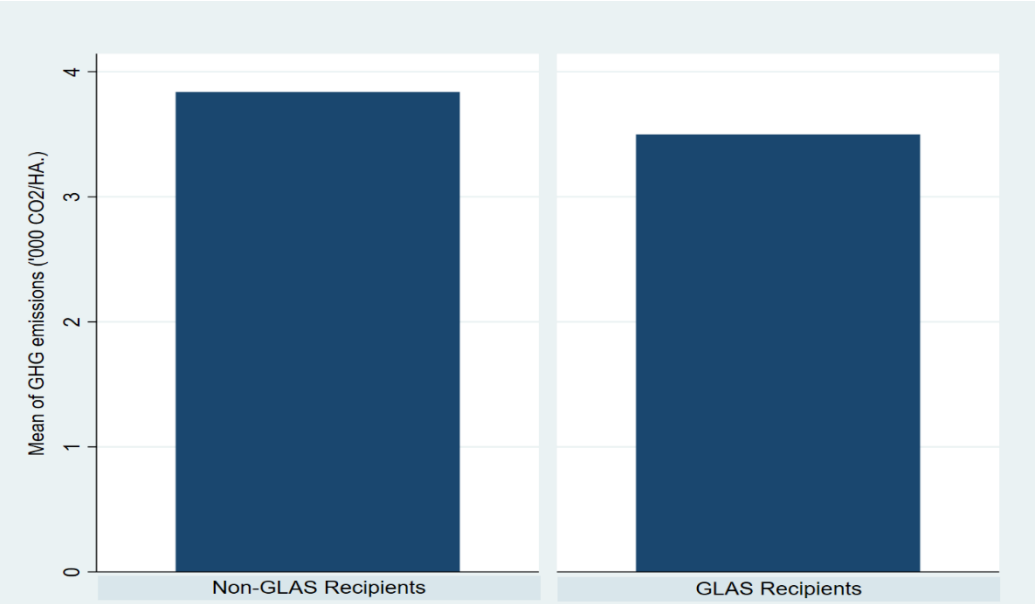

***Source: Indecon analysis of NFS data.***

When we examined the average GHG impact of farms when Dairy farms are removed from the analysis this indicates that it appears that GLAS farmers typically have lower GHG emissions than non-GLAS farmers. This analysis does not account for observed characteristics that may be influencing both the decision to participate in GLAS and the GHG emissions.

[50] These emissions factors are taken from Ryan et. al. (2016) "Developing farm-level sustainability indicators for Ireland using the Teagasc National Farm Survey"

[51] We have converted the output units into relevant quantities than the emission factors can be applied to.

**Figure 6.8: Average Greenhouse Gas Emissions per ha ('000 $CO_2$ equivalents/Ha.) – Removing Dairy Farmers**




***Note: This comparison removes all Dairy farmers from the comparison***
***Source: Indecon analysis of NFS data.***

As part of our analysis we also attempted some preliminary modelling which accounts for the different characteristics that influence both the selection into GLAS and the ultimate GHG emission impact. This analysis suggests that farms in receipt of the GLAS payment have lower GHG emissions. As discussed previously, there are limitations to the approach adopted which means that the results should be interpreted with caution. Further research is needed in this area and farm level data would be helpful and it may be feasible to consider this in the context of the ADAS research or other future research.

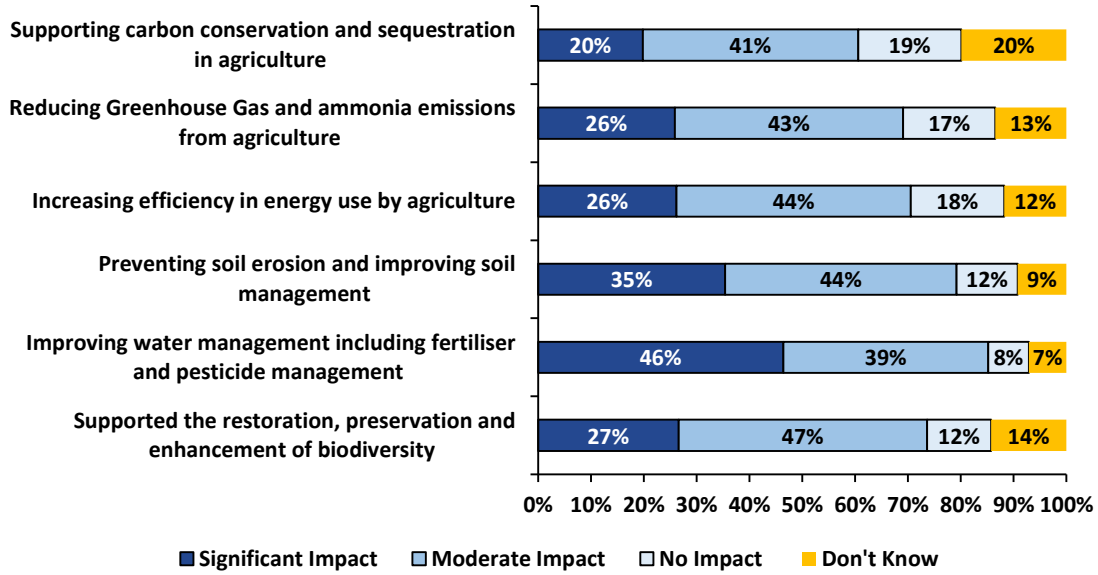
**Table 6.15: Analysis of GHG Emissions on GLAS and Non-GLAS farms**

| Estimation Model | Outcomes Variables | ATET | Observations |
|---|---|---|---|
| **Regression Adjustment Model** | Log of GHG Emission ('000 $CO_2$/Ha) | -0.100*<br>(0.046) | 2,018 |
| **Propensity Score Matching** | Log of GHG Emission ('000 $CO_2$/Ha) | -0.116*<br>(0.065) | 2,013 |

**Note: These estimates are only significant at the 10% confidence interval**
**Source: Indecon analysis**

The submeasures under Measure 10 are the main measures that contribute to the agri-environment objectives of the RDP. As part of our stakeholder engagement process, we surveyed farmers on the likely impacts of the RDP on various environmental issues. The results of this analysis are shown in the figure below and indicate that a view that the largest impacts of the RDP relate to the preservation of biodiversity, soil management and water quality.

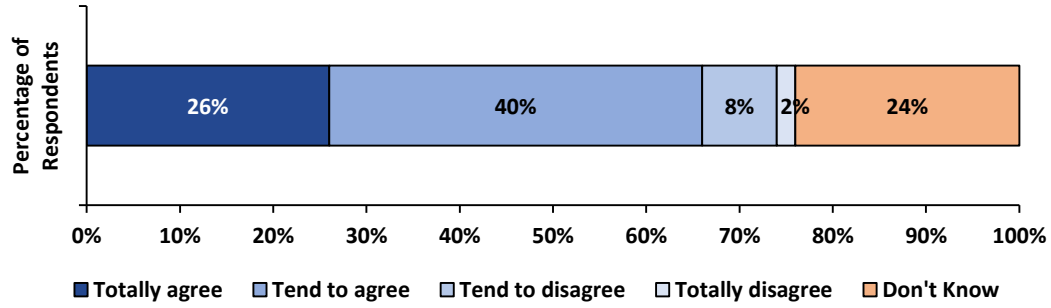
**Figure 6.9: Views on the Impacts of RDP on key Environmental Issues**




*Source: Indecon survey*

The public also believes that the various agri-environmental measures under the RDP are likely having a positive impact on mitigating climate change (see Figure 6.10). A recent Eurobarometer survey indicates that around 66% of Irish respondents believe that the CAP contributes to the mitigation of climate change.

**Figure 6.10: Views of Persons Surveyed by Eurobarometer on the Impact of RDP on Mitigating the Impact of Climate Change**




*Source: Eurobarometer 467. (Only including Irish respondents)*
*Original Question: Do you agree or not that the Common Agricultural Policy (CAP) contributes to mitigating the impact of climate change?*

**Impact of GLAS on environmental and climate objectives**

The purpose of the GLAS evaluation project, undertaken by ADAS Ltd[52]., is to conduct a longitudinal study of the impact of GLAS actions across three thematic areas: biodiversity, climate change and water quality. The contribution of GLAS actions to scheme biodiversity goals is being assessed by means of a field survey of over 300 GLAS farms repeated three times over the duration the scheme. An initial survey completed in August 2017 was followed by an interim survey completed in August 2018 with a final survey to be completed in August 2020. ADAS were tasked with compiling a detailed assessment of the biodiversity actions undertaken under the GLAS scheme. The ADAS report by Gooday et al. (2019)[53] describes in detail the objective, method and results obtained on environmental indicators as a result of GLAS scheme. Impacts on water quality and climate are difficult to measure directly and the contribution of GLAS actions to those objectives is assessed through a proprietary modelling approach developed by the contractor. In addition, attitudinal change among GLAS participants is captured by two rounds of telephone surveys supplemented by a counterfactual sample of approximately 100 farms outside the scheme.

**Impact of GLAS on climate change and water quality**

ADAS used computer models of pollutant emissions from agricultural land and the effects associated with changes from the land management to provide an estimate of likely impact. The computer modelling is used by ADAS to quantify the proportion of total pollutant load at the baseline, how that is controlled through selected management interventions, and the likely final reduction in the load on the assumptions of best practice. This modelling approach is the basis for answering the CEQs relating to climate and water quality. The explanation provided in the ADAS report suggests that computer modelling approach allows calculation of baseline emissions and efficiency of interventions by explicitly accounting for the spatial variation in agricultural intensity and soil/climate factors. An important aspect of the computer modelling framework is that it presents an explicit disaggregation of baseline pollutant emissions by source, land area, means of mobilisation and delivery pathways to waters. This is critical as it allows the stakeholders to assess the relative importance of the sources and pathways affected by land management interventions, the contribution from the non-agricultural sectors, and the likely limits to the scheme effect as well as the anticipated effect size that environment monitoring schemes must be designed to detect.

The Framework Model is used in combination with a detailed spatial data-set of crop-areas, livestock numbers and inputs for each Water Framework Directive ('WFD') waterbody to estimate the pollutants. The GLAS data for tranche 1 and tranche 2 of the scheme was used by this model. The dataset included 280,000 different actions on around 40,000 different farms, where there were over 20 actions within GLAS, of which many are compulsory depending upon the tier of entry, farm size, or the applicability of priority environmental assets to the farm.

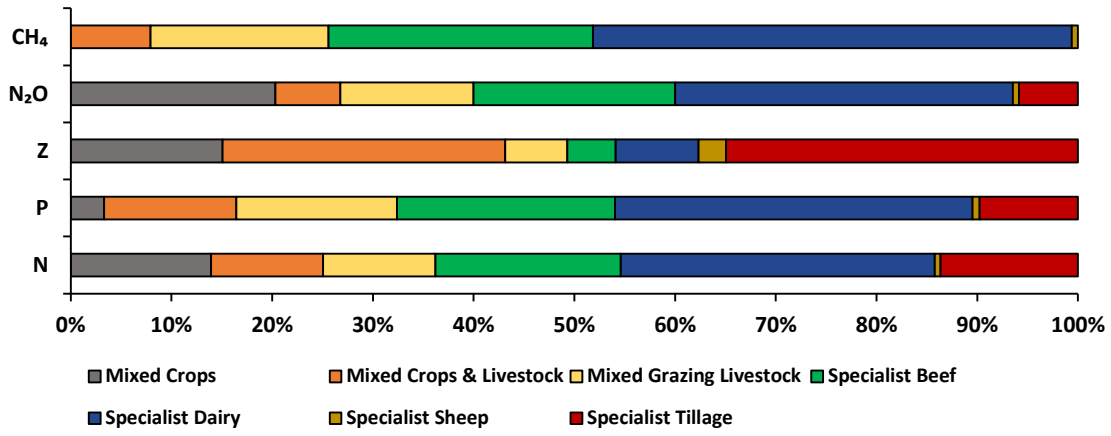
The overall impacts of GLAS on supported farms, as reported in the ADAS report, suggests a long-term annual reduction in the range of 5-9% for nitrate, phosphorus, nitrous oxide, and methane (see Figure 6.11). The differences are significant across farm types and as the table shows the reductions are significantly higher for specialist dairy and beef farms as compared to specialist sheep farms. In national terms, the impact is likely to be much lower at around a 1-2% reduction. This reflects the

[52] The ADAS reports referenced in this report are the reports completed by ADAS in 2019.

[53] Gooday, R., Whitworth, L., Whiteley, I., et al. (2019). Evaluation of the impacts of the GLAS on Diffuse Agricultural Pollution. *ADAS report. Commissioned by Department of Agriculture, Food and the Marine*.

fact that only 32% of farmland is in GLAS and GLAS has a disproportionately smaller amount of Dairy farmers.

**Figure 6.11: Percentage reduction in the agricultural pollutant load from farms in GLAS by Farm Type Classification**

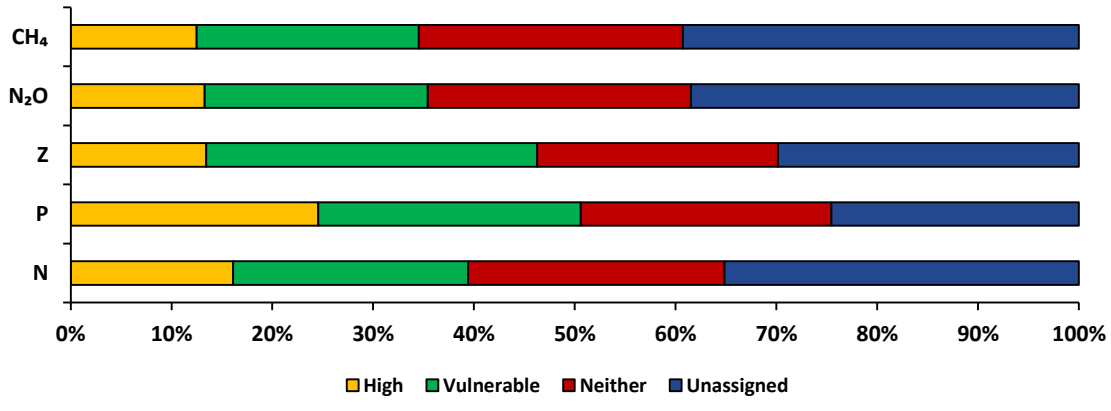



| | N | P | Z | $N_2O$ | $CH_4$ (Methane) |
|---|---|---|---|---|---|
| All | 6.3 | 8.4 | 1.8 | 6.2 | 4.6 |

*Source: Evaluation of the impacts of the GLAS on Diffuse Agricultural Pollution. ADAS report.*

The assessment of pollutant load reduction from GLAS farms by the water body classification is shown in Figure 6.12.

**Figure 6.12: Percentage reduction in the agricultural pollutant load from farms in GLAS by WFD Water Classification**




*Source: Evaluation of the impacts of the GLAS on Diffuse Agricultural Pollution. ADAS report.*

**Impact of GLAS on Biodiversity**

In addition to the pollutant modelling, the ADAS evaluation commissioned by the DAFM[54] relies on the field survey component of the GLAS monitoring programme, which is different from the monitoring of pollutant and water quality estimated through computer modelling, as discussed earlier. The methodology for the field survey was developed by ADAS in consultation with the DAFM and it was agreed that the field surveys address biodiversity (designated areas, other priority habitats, and both target and non-target species) and be conducted at three points: baseline survey plus monitoring surveys in 2018 and 2020 covering 26 actions from the scheme. A sample size of 30 sites was agreed for analysing bird and habitat actions while a smaller (10 sites) sample was agreed for monitoring the common habitat areas. Moreover, for actions involving creation or maintenance of specific farm features (bee boxes, bird boxes, bat boxes and traditional stone walls) a construction and maintenance survey was required. This report sets out to answer the Common Evaluation Questions set out under Focus Area 4A. In terms of interpretation of the actions, a measure of success (MoS) was agreed. MoS serve as indicators to provide an overall indication of the success or otherwise in relation to the concerned GLAS action. The measures are broadly divided into three categories:

- Specification: MoS are derived from the management requirements set out in the specification for each action. These indicate whether actions are being carried out as prescribed in GLAS documentations.
- Outcome: MoS are based on a knowledge of the ecology of the species or habitat that is the focus of the action. These are not set out in the specification requirements but are indicators that could be expected to be met if the prescription is being correctly followed and external variables are suitable.
- Result: MoS are a special type of Outcome where the ability to evidence the success from a single point of time and single parcel field survey is challenging. In the context of this evaluation this refers to MoS evidencing the presence of mobile species.

The overall results, as shown in Table 6.16, suggest that the execution of the agreements against the requirement of specification has been good. On average, most of the specification MoS score above 70%, barring Arable Margins (40%), Environmental Management of Fallow Land (68%), Coppicing of Hedgerows (57%), Corncrake (33%), Chough (68%), and Hen Harrier (54%). Of these six actions, the corncrake action may not meet its objective. It is also noted that the preservation of the Hen Harrier is supported through a Hen Harrier specific EIP which has expenditure so far of close to €2million. These will increase as the EIP becomes moves to the operational stage.

Similarly, the quality of habitat and features in the context of other outcomes have also performed well in 2018 with only Arable Margins (68%), Commonages (67%), Chough (67%) and Twite (37%) scoring less than 70% on average against Outcome MoS. As compared to the survey results for 2017, most of the specification MoS witnessed positive change over 2017/18. Exceptions to this were Riparian Margins, Twite, Traditional Dry-stone wall, Conservation of Solitary bees, and Protection of water-courses from Bovines which had a negative change over 2017/2018. The ADAS report notes that in many cases the quality of outcomes was already very high at the baseline year which has been maintained and increased in other cases. ADAS note that the two habitat actions are generally weak due to scores on floral cover and botanical diversity which is not surprising given the amount of time passed since the agreement started and the likely starting level of nutrients.

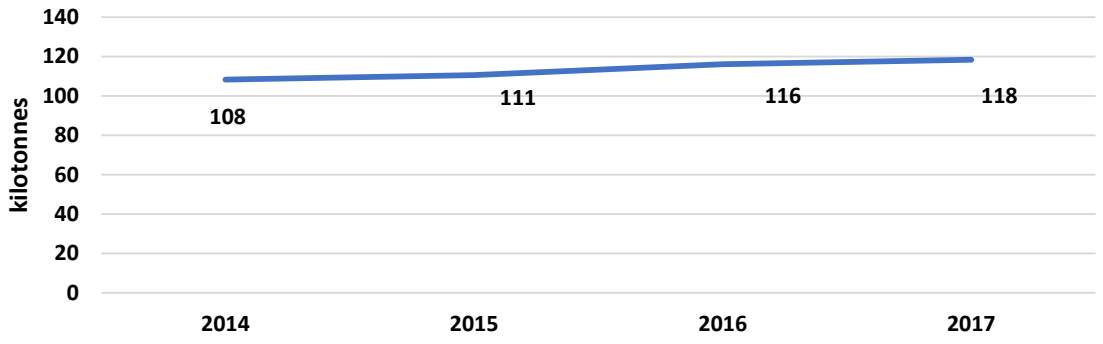
[54] Image, M and Brown, C. F. (2019). Year 2 Analysis of Actions under GLAS: Full Report. *Reference no. CPAE002. Prepared by ADAS for the Department of Agriculture, Food and Marine.*

| Table 6.16: Summary of Measures of Success (MoS) for GLAS Actions | | | | | | |
|---|---|---|---|---|---|---|
| **Individual GLAS Actions** | **Average Specification MoS (2017) (%)** | **Average Specification MoS (2018) (%)** | **Change (2017/18)** | **Average Outcome MoS (2017) (%)** | **Average Outcome MoS (2018) (%)** | **Change (2017/18)** |
| Arable Grass Margins | NA | 40.0 | NA | NA | 68.1 | NA |
| Bat Boxes | 89.0 | 89.8 | 0.8 | NA | N/A | 4.1 |
| Bird Boxes | 87.5 | 89.4 | 1.9 | NA | N/A | 3.6 |
| Breeding Waders and Curlew | 73.0 | 76.7 | 3.7 | NA | N/A | NA |
| Chough | 70.0 | 68.5 | -1.5 | 67.0 | 67.0 | NA |
| Conservation of Solitary Bees (Boxes) | 91.4 | 87.4 | -4 | NA | N/A | 4.2 |
| Conservation of Solitary Bess (Sand) | NA | 66.3 | NA | NA | N/A | NA |
| Commonages | NA | N/A | NA | 76.7 | 66.7 | 9 |
| Coppicing of Hedgerows | NA | 56.6 | NA | NA | N/A | NA |
| Corncrake | 30.8 | 32.8 | 2 | NA | N/A | NA |
| Environmental Management of Fallow Land | NA | 68.0 | NA | NA | N/A | 1.3 |
| Farmland Habitat (Natura): Grassland | NA | N/A | NA | 66.7 | 70.8 | 2 |
| Farmland Habitat (Natura): Heathland | NA | N/A | NA | 75.0 | 78.6 | 4 |
| Geese and Swans | 77.0 | 89.0 | 12 | NA | N/A | 3.9 |
| Grey Partridge | 82.8 | 90.8 | 8 | NA | N/A | NA |
| Hen Harrier | 30.5 | 54.0 | 23.5 | 78.5 | 82.7 | 4 |
| Laying of Hedgerows | NA | 76.0 | NA | NA | N/A | NA |
| Low Input Permanent Pasture | 85.0 | 93.8 | 8.8 | 71.7 | 80.7 | NA |
| Planting a Grove of Native Trees | NA | 75.6 | NA | NA | N/A | 4.1 |
| Planting New Hedgerows | NA | 73.5 | NA | NA | N/A | 3.6 |
| Protection of Watercourses from Bovines | 84.7 | 81.0 | -3.7 | 78.7 | 80.0 | NA |
| Riparian Margins | 90.5 | 81.0 | -9.5 | 89.5 | 91.5 | NA |
| Traditional Dry-Stone Wall Maintenance | 93.3 | 89.0 | -4.3 | 93.0 | 97.0 | 4.2 |
| Traditional Hay Meadow | 81.6 | 89.0 | 7.4 | 67.3 | 71.2 | NA |
| Traditional Orchards | NA | 83.6 | NA | NA | N/A | 9 |
| Twite (Option A) | 100.0 | 93.0 | -7 | 33.0 | 37.0 | NA |
| Wild Bird Cover | 70.8 | 77.5 | 6.7 | NA | N/A | NA |
| ***Source: Analysis of Actions under GLAS: Full Report. Reference no. CPAE002. Prepared by ADAS (2018-2019)*** | | | | | | |

### Impact on Ammonia Emissions

EPA data indicates that ammonia emissions have increased in recent years. The EPA notes that Ireland has exceeded its emission ceilings for Ammonia ($NH_3$) in both 2016 and 2017.

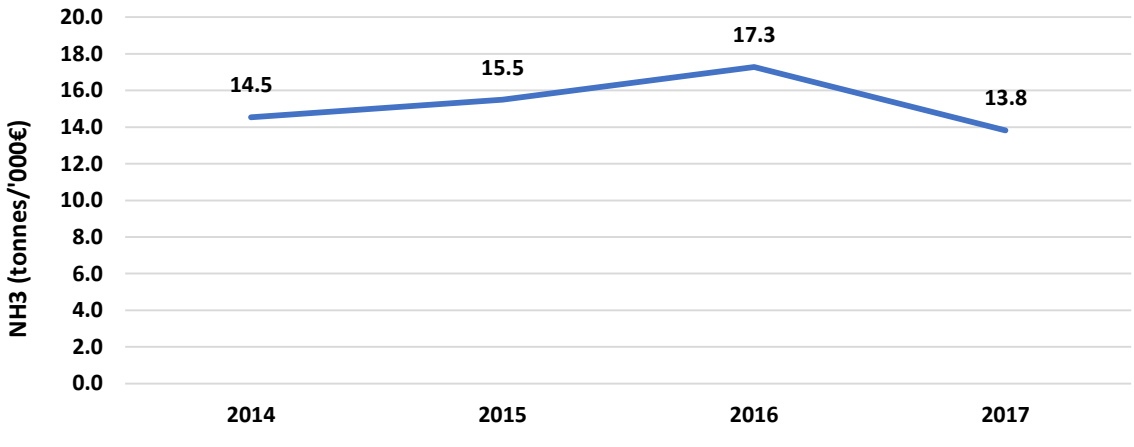
**Figure 6.13: Ammonia Emissions in Ireland (kilotonnes) (2014-2017)**




*Source: EPA*

Ammonia emissions are related to animal manures and nitrogen fertilisers. This increase is linked to the increase in the size of the dairy herd and the increase in synthetic fertiliser nitrogen use. This is confirmed once the $NH_3$ emissions are standardised to real agricultural output, as shown in Figure 6.14, where $NH_3$ emission reduced by 20% in 2017. This analysis shows that the average ammonia emission per unit of output has decreased in 2017. This is based on examining the aggregate level of ammonia emissions per unit of agriculture output.[55]

**Figure 6.14: Ammonia Emissions per agricultural output (tonnes/'000€) (2015=100)**

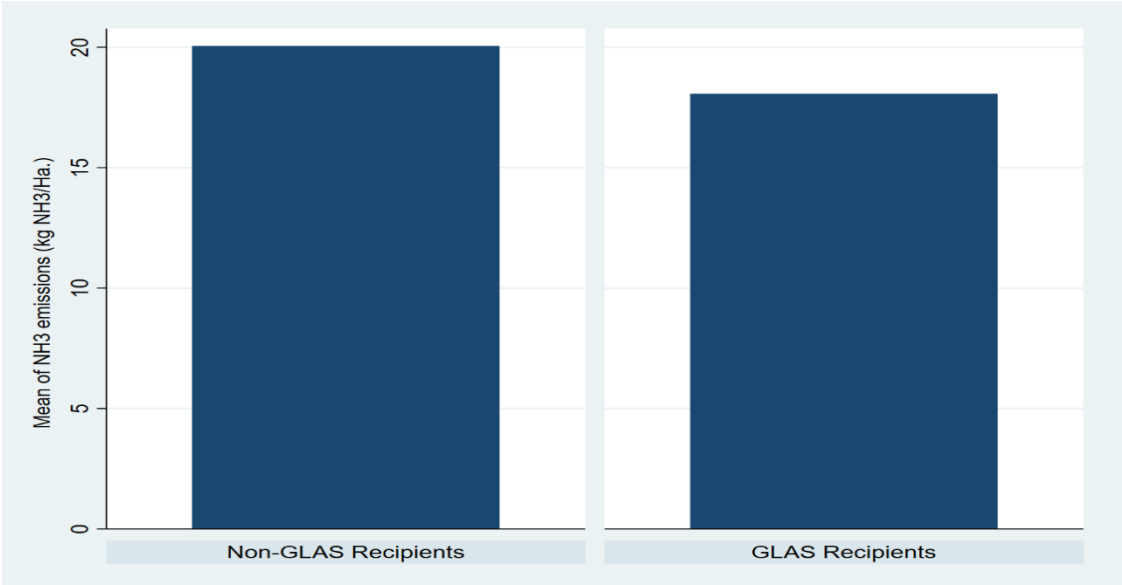



*Source: Indecon analysis of EPA and CSO data*

[55] This is the combined output of the different farm types

It is possible to apply a similar approach to the estimation of ammonia emissions using the NFS. We have taken the various emission coefficients from a recent Teagasc publication.[56] As described previously, there are limitations with this approach. The summary statistics produced by this analysis are shown in Figure 6.15 which indicated that farmers who received a GLAS payment typically had a lower level of ammonia emissions over the 2015-2017 period.

**Figure 6.15: Analysis of Ammonia Emissions of GLAS supported farms**




***Note: Dairy Farms have been removed from the analysis***
***Source: Indecon analysis***

We also consider some econometric modelling that considers various observed farm characteristics. This analysis is shown in Table 6.17. The results are somewhat ambiguous. The Regression Adjustment model suggests that GLAS support has led to a significant reduction in ammonia emissions of around 8% per annum. However, the propensity score matching model does not find a statistically significant impact. These results are indicative at this stage and should be interpreted with caution.

**Table 6.17: Impact of GLAS support on Ammonia Emission**

| Estimation Model | Outcomes Variables | ATET | Observations |
|---|---|---|---|
| **Regression Adjustment Model** | Log of $NH_3$ Emission (kg $NH_3$/Ha) | -0.085*<br>(0.051) | 2,047 |
| **Propensity Score Matching** | Log of $NH_3$ Emission (kg $NH_3$/Ha) | -0.010<br>(0.079) | 2,042 |

***Source: Indecon analysis***

[56] Teagasc (2019) National Farm Survey 2017 Sustainability Report

These results are indicative at this stage and should be interpreted with caution. Indecon believes that additional farm level inputs on ammonia emissions and changes at farm level would be helpful in analysing likely impacts.

**Submeasure 10.1: The Burren Programme**

This scheme focusses on the conservation of the unique farming landscape of Burren in the counties of Clare and Galway. The Burren Programme is locally led agri-environmental measure and aims to reward farmers with highest environmental outputs by promoting farming models that combine traditional farming practices with scientific assessment of environmental health.

The Burren Programme is built on the success of similar programmes such as Burren LIFE Project (2005-2010) and the Burren Farming for Conservation Programme (2010-2015) and is delivered by means of two interventions that participants undertake in line with the five-year plan. Intervention 1 (I-1) is performance/result-based while Intervention 2 (I-2) is a complimentary capital-investment based intervention.

The Burren Programme addresses the following focus areas/common evaluation questions:

- FA4A: Restoring, preserving and enhancing biodiversity, including Natura 2000 areas.

*Input and Activities of the Burren Programme*

The Burren Programme is managed on the ground by High Nature Value Services Ltd (HNVS), which is a specialised locally based intermediary layer appointed through a competitive tender process. The HNVS team is aimed to undertake the following activities:

- Provide training and advice to the Burren Farm Advisor;
- Approve Farm Plans;
- Review the work of Advisors on an on-going basis;
- Conduct training workshops for participants; and
- Manage, monitor and promote the programme.

The Burren Programme plan is developed by farmers with assistance from 10 trained and approved Burren Farm Advisors. In 2016, an additional five advisors were recruited and trained. The participating farmers submit a five-year plan and an overview of the interventions for their participation in the programme. The farm plan is a short document that contains all required information and can have colour-coded map, and aerial imagery with the following details:[57]

- 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 five-year term of the plan.

[57] Source: The 2017 Evaluation on the Implementation of Ireland's Rural Development Programme 2014-2020. Department of Agriculture Food and The Marine: Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/2017EvaluationofIrelandsRDP180917.pdf

- A short summary of proposed priority works to be undertaken under Intervention 2 (I-2) 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.

The public spending on Burren programme so far is under €2.14 million by the end of 2018. This is around 17% of the allocated funding of €12.86 million (see Table 6.18).

**Table 6.18: RDP funding input for the Burren Programme (FA4A)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2021 |
|---|---|---|---|---|---|
| Total Public Expenditure (€ Millions) | 0.23 | 0.91 | 1.00 | 2.14 | 12.86 |

***Source: Indecon Analysis of DAFM Indicator Data.***

*Output of the Burren Programme*

The farmers in the Burren programme are accepted as per the application calls made in regular tranches. So far, 304 farmers have been paid by the end of 2018 with total supported area over 11,000 hectares (See Table 6.19).

**Table 6.19: RDP outcomes for Burren Programme (FA4A)**

| Indicators | 2014-2016 | 2017 | 2018 |
|---|---|---|---|
| Total Area (ha) | 3,637 | 9,725 | 11,012 |
| No. of contracts supported (ha) | 58 | 246 | 304 |

***Source: Indecon Analysis of DAFM Indicator Data.***

*Results and Impact of Burren Programme*

The Burren Programme Annual Report (2017) suggests that as compared to the I-1[58] score of 7.21 recorded in 2016, the average score in 2017 was 7.1. The fall is explained as a result of new farmers being added to the programme who on an average have a lower score, 6.5 in 2017, thus impacting on the overall score. Furthermore, a direct comparison of average scores between the farmers who completed two years of the programme show a small increase in the score from 7.215 in 2016 to 7.274 in 2017.

Our analysis suggests that the programme is increasing after a slow start in the first year of operation. On the implementation side, a set of validated I-1 score data has been generated, the final recruitment phase has been completed, a mapping system (GLAMS) is live, all planning templates have successfully been applied, and I-2 works have started after three years. With the progress achieved so far, it is expected that the third year of the programme should witness an increase in I-2 works across the farms. This should also support the I-1 scores in recovering from the extreme winter conditions of 2017-18 in the region.

[58] Intervention 1 (I-1) is performance/result-based while Intervention 2 (I-2) is a complimentary capital-investment based intervention.

**Beef Data and Genomics Programme (BDGP)**

The agriculture sector contributes around 33% of the total GHG emissions in Ireland. This is high compared to the EU average.[59] The level of emissions in Ireland is mainly associated with the large herd size, and excluding the dairy production, beef accounts for approximately 50% of agricultural GHG emissions. As a result, a range of measures in the RDP are structured to address this with different supports in the form of training programmes and actions within GLAS and Measure 4 (TAMS II). Furthermore, BDGP is set out to target the suckler herd in an attempt to put in place a broad based and strategic approach to GHG emissions in the agri-sector. The BDGP has been launched in two tranches with Tranche 1 running from 2015-2020 and Tranche 2 running from 2017-2022. Under the RDP, around €295 million[60] has been committed to the BDGP for its duration, with €165 million coming from the European Agricultural Fund for Rural Development (EAFRD). As the BGDP is a recent (2015) programme the impact of the programme will likely only become tangible in the future.

The BDGP scheme requires farmers to undertake actions designed to deliver accelerated genetic improvement in the quality of the beef herds which would lead to better climatic outcomes. As a result, the BDGP scheme establishes a large-scale data collection system from the suckler herd, which is then fed into a genomics-based breeding index. This index ranks the efficiency of an animal on a star-based system where five stars are indicative of most efficient.[61] This is expected to inform farmers in choosing resource efficient suckler cows and bull replacement. The reliability of index is increased rapidly by the central collection of data across all farms and breeds.

The implementation of the BDGP scheme is expected to serve as a first-step towards the widespread application of genomics in the suckler herd with a renewed focus on a multi-trait breeding strategy. The BDGP scheme addresses the following focus areas/common evaluation question:

- FA5D: To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

**Input and Activities of BDGP**

The BDGP requires farmers to undertake a six-year commitment to carry-out set of actions that are designed to underpin delivery of a more climate friendly suckler herd. These actions involve:[62]

- 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.

[59] However, the structure of the Irish economy must be noted here as Ireland doesn't have any significant heavy industry. Beef production in Ireland is also quite carbon efficient compared to the EU average.

[60] Around €15 million is allocated to BDGP for training under Measure 1

[61] Summary of Rural Development Programme Ireland 2014-2020 (September 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

[62] Ibid.

The applicants to the programme on fulfilling certain criteria receive a payment of €142.50 per hectare for the first 6.66 payable hectares in the scheme, and a reduced payment of €120 is made for the remaining eligible hectares. Moreover, the participants in BDGP also benefit from the support provided under Measure 1 in the form of training and the completion of a carbon navigator. The total public spending so far made under BDGP under M10.1 is over €168 million and represents almost 60% of the target public spending of just under €281 million (see Table 6.20).

**Table 6.20: RDP funding input for Beef Data and Genomics Programme (BDGP) (FA5D)**

| Indicators | 2015 | 2016 | 2017 | 2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure (€ Millions) | 28.99 | 50.80 | 44.22 | 44.78 | 280.9 |

***Source: Indecon Analysis of DAFM Indicator Data.***

### Output of BDGP

There are a number of criteria that must be met by farmers including a healthy herd.[63] At the end of 2018, physical area just over 0.33 million hectares has been supported by the scheme with total contracts just under 23,000 (see Table 6.21).

**Table 6.21: RDP outcomes for Beef Data and Genomics Programme (BDGP) (FA5D)**

| Indicators | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| Area Supported (ha) | 236,261 | 334830 | 320,794 | 331,574 |
| No. of contracts supported (ha) | 15,914 | 23,185 | 22,042 | 22,901 |

***Source: Indecon Analysis of DAFM Indicator Data.***

### Early Impacts of BDGP

DAFM has conducted a spending review[64] of the BDGP. This report reviews the progress of the programme to-date and considers how the benefits could be monitored and evaluated in the future. Much of the analysis below reflects the data used in the spending review. As stated previously, the BDGP programme, which runs from 2015-2022 requires beneficiaries 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 such as reduced GHG emissions. This means that GHG emission reduction targets can be achieved as the number of animals required to produce a given level of output is reduced if the efficiency of the herd is improved. In 2017 Ireland was the fifth largest exporter of beef in the world, with the Irish beef sector recording 615,000 tonnes of output, valued at €2.5 billion, which equates to both a 6% increase on 2016 and 20% of total agri-food exports.

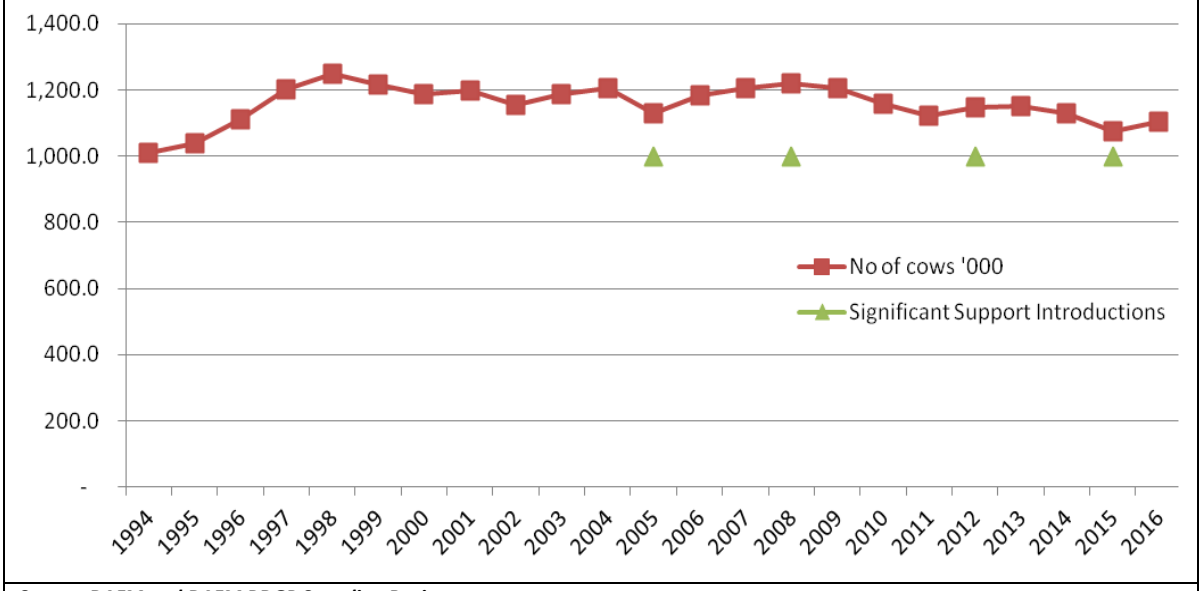
It can be seen from Figure 6.16 that the number of beef animals have marginally decreased in recent years with a forecast that the total beef herd will decline by 11% between 2020 and 2035. Also, it can

[63] This means that any herds where BVD animals remain in the herd are ineligible for the BDGP scheme. This builds on the improvements in animal health that are outlined in section 7.3

[64] DAFM Spending Review Paper "Beef Data and Genomics Programme" Version: May 2019

be seen that these declines coincided with the introduction of supports, the most recent being the BDGP programme. Between 2015 and 2017 a 1% decline in suckler cows was observed. The mechanism in the BDGP payments that they are based on the level of stock recorded in the reference year ensures that there is no incentive for recipients to increase herd size.

**Figure 6.16: Introduction of Supports and Suckler Cow Numbers in Ireland**

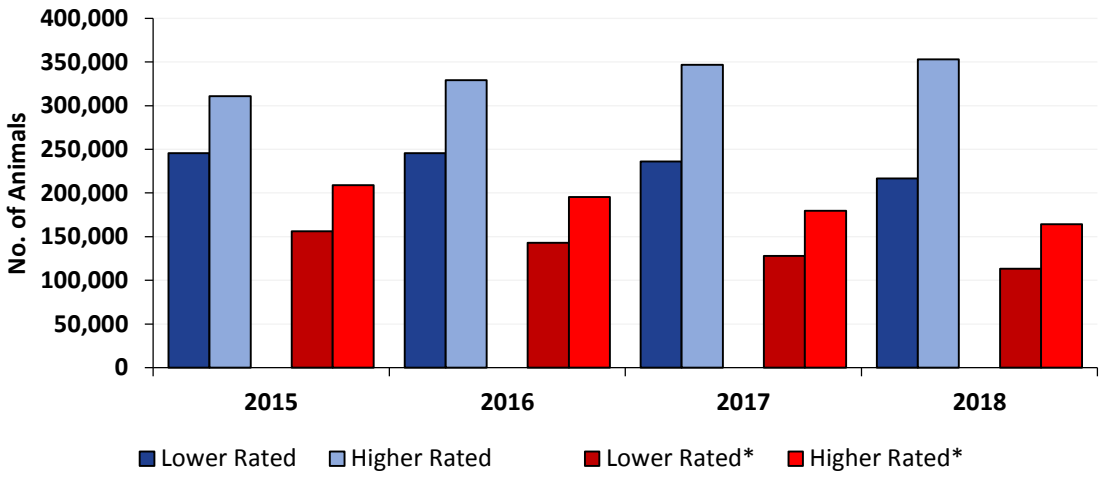



*Source: DAFM and DAFM BDGP Spending Review*

The average herd size for BDGP participants since the introduction of the scheme is 24 suckler cows which reflects a marginal increase in stocking rates of 3.4% from a base of 23.2 suckler cows in 2015 although slightly lower than 2017 level of 24.2 cows in 2017. However, given the replacement rates required under the BDGP, this increase reflects a shift from less efficient cows to more efficient cows in line with the set objectives, whereas the non-BDGP herds are replacing their animals at a slower pace.

Figure 6.17 shows the movements across star classes for suckler cows. The analysis shows that the number of cows moving from lower rated to higher rated is higher for BDGP herds than non-BDGP herds. The size of non-BDGP herds has decreased between 2015 and 2018. The environmental value of the different star ratings will be discussed below. Meanwhile, the replacement of less efficient with more efficient cows is lower for non-BDGP herds.

**Figure 6.17: Star Rating for Cows**




*Source: ICBF and DAFM BDGP Spending Review.*
*Note: Lower rated are the sum of star classes 1-3, while higher rated are made up of star classes 4-5.*
**: Indicates non BDGP animals.*

It can be seen from Table 6.22 that 5-star cattle achieve the highest carcass traits and weaning efficiency, consistently outperforming 1-star cattle. Other preliminary data suggests that BDGP animals are breeding cows that calve for the first time at younger ages which also have reduced calving intervals on average. Additionally, BDGP animals have record improved weanling weights for and grazing longer grazing season (weather permitting) than their non-BDGP counterparts.

An objective of the BDGP programme is the reduction of GHG emissions. It can be seen from Table 6.22 that there is a negative relationship between 5- and 1-star-rated animals, and as more highly rated cows are lighter than their lower rated counterparts (heavier animals increase GHG emissions).

**Table 6.22: The Euro Star System Classes Compared**

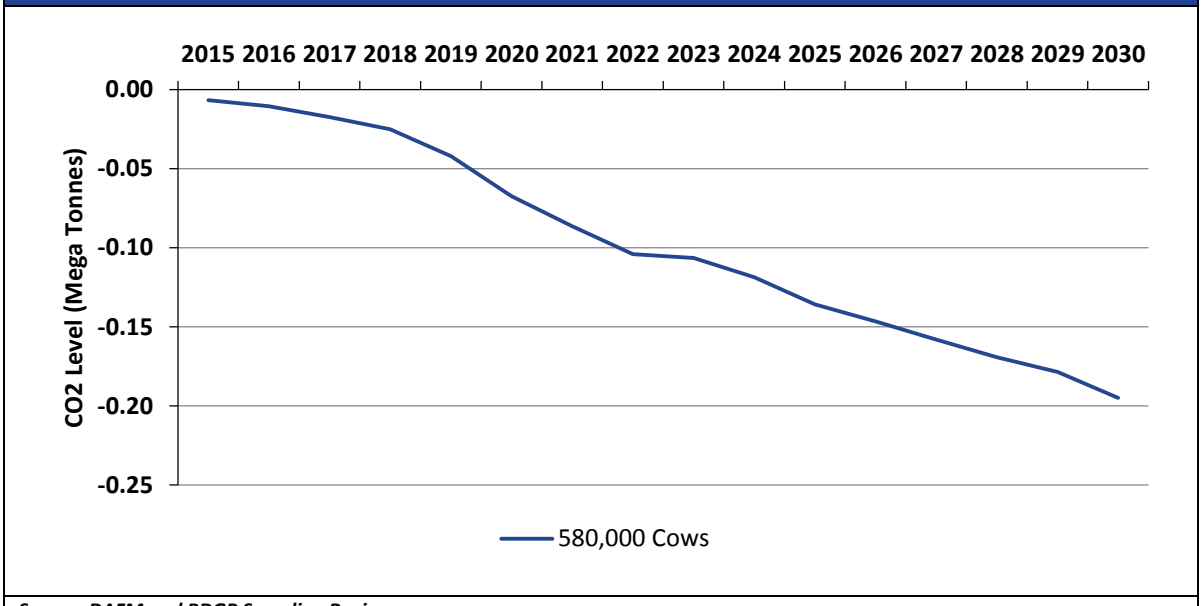
| Stars | Repl. Index | Cow weight | Calf wean weight | Calving interval | Progeny carcass weight | $CO_2$ output |
|---|---|---|---|---|---|---|
| 5 star | €108 | 669 kg | 336 kg | 403 days | 358 kg | 3,355 kg |
| 4 star | €86 | 680 kg | 324 kg | 407 days | 356 kg | 3,432 kg |
| 3 star | €60 | 690 kg | 319 kg | 411 days | 356 kg | 3,475 kg |
| 2 star | €43 | 691 kg | 315 kg | 416 days | 357 kg | 3,502 kg |
| 1 star | €12 | 739 kg | 309 kg | 426 days | 357 kg | 3,552 kg |
| **Diff 5* v 1*** | **+ €96** | **- 70 kg** | **+ 27 kg** | **- 23 days** | **+ 1 kg** | **- 197 kg** |
| **Diff 4* v 3*** | **+ €16** | **- 10 kg** | **+ 5 kg** | **- 4 days** | **0 kg** | **- 43 kg** |

*Source: ICBF and BDGP Spending Review*

In terms of GHG emissions, the impact of BDGP has yet to be comprehensively quantified. Based on 2018 uptake levels of 580,000 BDGP cows, it is estimated that by 2030 there would be a cumulative 1.6 Mt reduction in $CO_2$ equivalent on 2015 levels – which equates to a marginal abatement potential of around 11%. This is due to cumulative benefits which will lead to the current top 1% of cattle (in

terms of efficiency and star-rating) becoming the norm by 2030. Figure 6.18 shows the expected reduction in $CO_2$ between 2015 and 2030 as a result of the BDGP. Using the projected shadow prices of carbon this would lead to a saving between 2015 and 2030 of between €22.5m and €135m.[65] However, it is important that these findings are monitored on a regular basis. It must also be noted that these potential savings are a relatively small share of the overall environmental emissions from agriculture which in 2017 accounted for around 20 Mt of CO2 equivalent.66 These points should be considered in the context that beef is only one part of the solution, and the 20 Mt refers to all agriculture. If beef accounts for around half of this 20Mt (which also includes dairy origin beef and non-BDGP related beef, and the non-BDGP beef herd) then a 1.6 Mt cumulative reduction may be significant.

**Figure 6.18: Expected Reduction in CO2 2015-2030**




*Source: DAFM and BDGP Spending Review*

It is important to reiterate that the BDGP is a relatively new programme and therefore any comprehensive evaluation of its benefits, particularly those in relation to GHG emission reduction, will require an evaluation over a longer time period.

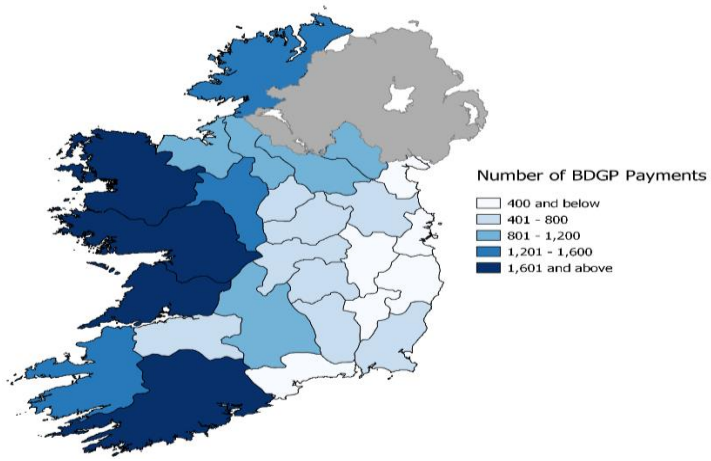
Figure 6.19 contrasts the number of BDGP payments by county. Counties in the west of Ireland tend to have a higher number of BDGP payments, with Galway, Mayo and Clare amongst the highest.

[65] These estimates are based on the Public Spending Code from 2015. The Public Spending Code provides a recommended tCO2e value of €10/t to 2020, €14/t to 2025, €35/t to 2030 and €57/t to 2035.

Available at https://publicspendingcode.per.gov.ie/wp-content/uploads/2015/09/E5.pdf

[66] Figure from the EPA Ireland. Total CO2eq in Ireland in 2017 was almost 61 MT CO2eq with agriculture accounting for around a third of this.

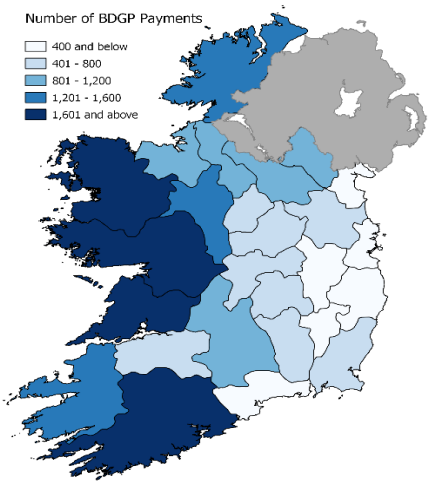
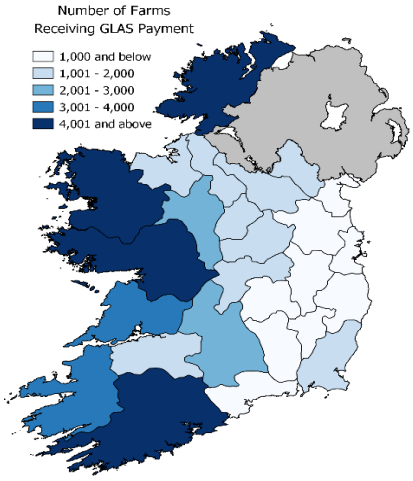
**Figure 6.19: Number of BDGP Payments by County**




*Source: Indecon analysis of DAFM data*

The following figure compares the number of BDGP and GLAS payments in each county. As mentioned previously the counties on the west coast of Ireland are amongst those with the highest number of BDGP payments, with the same counties amongst the highest in terms of GLAS payments also. The average size of farms supported under BDGP is shown on a county-by-county basis in the following figure. Farms receiving BDGP payments in the west and border regions of Ireland tend to be smaller farms, compared to those in the east and south-east. This is also true for farms receiving GLAS payments.

**Figure 6.20: Comparison of BDGP Payments & GLAS payments by county**

| BDGP | GLAS |
|---|---|
|  |  |



*Source: Indecon analysis of DAFM data*

## 6.3 Measure 11: Organic Farming Scheme (OFS)

The support for OFS aims to convert farmers from the conventional methods of farming towards organic farming methods and continue to practise them after the initial phase of conversion. The

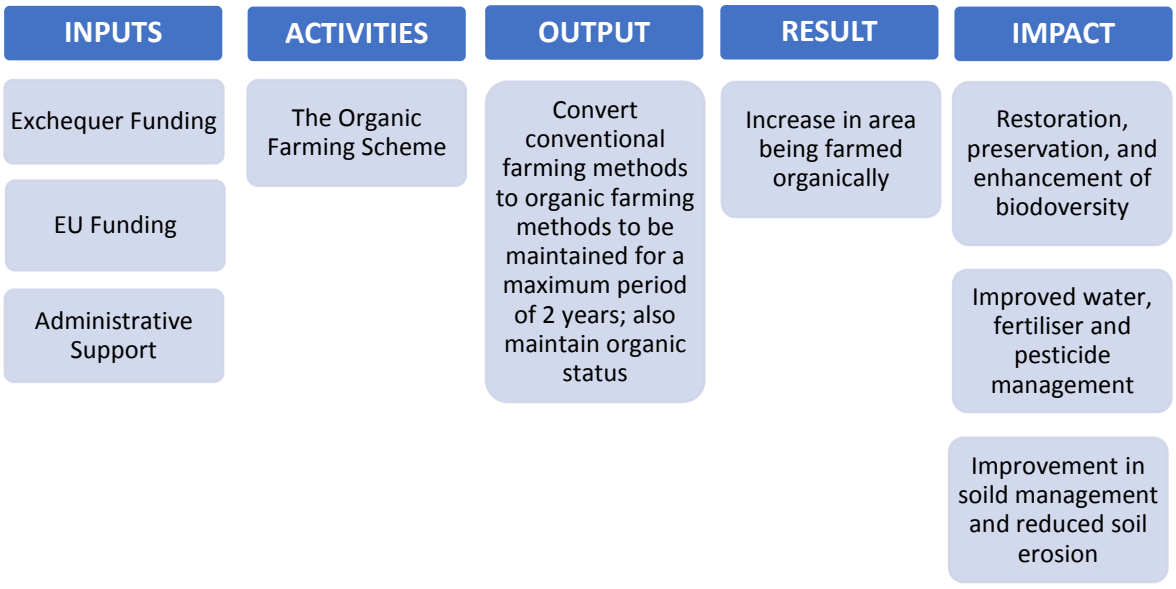
Organic Farming Scheme is expected to establish and maintain a sustainable management system for agriculture. The practices within the OFS aim to improve soil and water quality, mitigation and adaptation to climate change, and to the improvement of biodiversity through use of organic fertilisers, improvement to soil organic matter and crop rotation.

This scheme is in response to demand for the use of environmentally friendly farming practices through organic methods and to address the low levels of organic production in Ireland, as identified in the SWOT analysis. Even though the organic farm production is a small sector in Ireland, it has opportunity for growth and Food Harvest 2020[67] endorsed the target of 5% of Utilisable Agricultural Area (UAA) to organic crop area by 2020. However, this is not an RDP target. A recently published review of the organic food sector[68] has now sets targets according the different sub-sectoral objectives.

The relevant focus areas/common evaluation question addressed under M11 relates to Priority 4 of RDP 2014-2020 and the PLM for M11 is shown in Figure 6.21.

- FA4A/4B/4C (P4): Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry.

**Figure 6.21: Programme Logic Model - Measure 11**




***Source: Indecon***

[67] Food Harvest 2020 was followed by FoodWise 2025 which did not set a target for organic production.

[68] https://www.agriculture.gov.ie/media/migration/farmingsectors/organicfarming/organicsscheme/ReviewofOrganicFoodSector290119.pdf

### Input and Activities of OFS

The main support under M11 is through annual area-based payment per hectare of UAA over a five-year contract period. The standard rate of payment under OFS is €220/ha for conversion with a maintenance rate of €170/ha, with higher rates of €300/ha and €200/ha applying for horticulture operations, and €260/ha and €170/ha for tillage operations. In addition to this, a top-up of €30/ha is also available for red-clover. It should be noted that the higher horticulture rates apply only for the first six hectares and standard rate are applied thereafter.[69]

The total public spending made to OFS by the end of 2018 is over €23.33 million and is 42% of the specified target spending of €56 million (see Table 6.23).

**Table 6.23: RDP Funding input for Organic Farming Scheme (P4)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure (€ Millions) | 5.84 | 7.68 | 9.81 | 23.33 | 56.00 |
| **Source: Indecon Analysis of DAFM Indicator Data.** | | | | | |

### Output of OFS

The beneficiaries in the scheme should be active organic farmers registered with the DAFM and licensed by one of the Organic Control Bodies. The basic eligibility criteria for receiving support from the OFS are:

- A requirement for a minimum farm area of three hectares, except for horticultural producers where the minimum farm area is one hectare; and
- Registration with one of the Organic Control Bodies, possession of a valid organic licence and registration with DAFM.

Across 1,368 farm holdings, the total area supported under OFS for farm-conversion is almost 51,000 hectares with over 49,000 hectares have been supported for farm maintenance in 2018 under the scheme (see Table 6.24). We note that the OFS re-opened in November 2018.

**Table 6.24: RDP outcomes for Organic Farming Scheme (P4)**

| Indicators | 2016 | 2017 | 2018 | Planned Output 2023 |
|---|---|---|---|---|
| No. of holdings supported | 1,264 | 1,338 | 1,368 | |
| Total area (ha) supported broken down by conversion | 24,000 | 18,572 | 1,759 | 16,000 |
| Total area (ha) supported broken down by maintenance | 26,000 | 33,441 | 49,049 | 46,880 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | |

[69] Summary of Rural Development Programme Ireland 2014-2020 (September, 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

Table 6.25 presents the percentages of total utilised agricultural land that is used for organic farming in various European Countries. Austria had the highest percentage of agricultural land used for organic farming at 19.4% in 2014 and 23.4% in 2017. In 2017, Malta had the lowest percentage of agricultural land devoted to organic farming at 0.35%. Ireland has a low proportion of agricultural land devoted to organic farming, at 1.2% in 2014 and 1.7% in 2017, well below the EU 28 average of 5.8% in 2014 and 7.0% in 2017.

**Table 6.25: Area Under Organic Farming as a Percentage of Total Utilised Agricultural Area in European Countries, 2016-2017**

| | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| EU (28 countries) | 5.78 | 6.2 | 6.68 | 7.03 |
| Belgium | 5 | 5.17 | 5.8 | 6.28 |
| Bulgaria | 0.96 | 2.37 | 3.2 | 2.72 |
| Czechia | 13.44 | 13.68 | 14 | 14.09 |
| Denmark | 6.25 | 6.33 | 7.81 | 8.6 |
| Germany | 6.18 | 6.34 | 6.82 | 6.82 |
| Estonia | 15.96 | 15.68 | 18.02 | 19.6 |
| **Ireland** | **1.16** | **1.65** | **1.72** | **1.66** |
| Greece | 6.72 | 7.7 | 6.5 | 7.96 |
| Spain | 7.26 | 8.24 | 8.48 | 8.73 |
| France | 3.87 | 4.54 | 5.29 | 5.99 |
| Croatia | 4.03 | 4.94 | 6.05 | 6.46 |
| Italy | 10.91 | 11.79 | 13.99 | 14.86 |
| Cyprus | 3.63 | 3.72 | 4.94 | 4.57 |
| Latvia | 10.86 | 12.29 | 13.42 | 13.92 |
| Lithuania | 5.57 | 7.11 | 7.5 | 7.98 |
| Luxembourg | 3.43 | 3.21 | 3.47 | 4.15 |
| Hungary | 2.34 | 2.43 | 3.48 | 3.73 |
| Malta | 0.29 | 0.25 | 0.21 | 0.35 |
| Netherlands | 2.67 | 2.67 | 2.91 | 3.14 |
| Austria | 19.35 | 20.3 | 21.25 | 23.37 |
| Poland | 4.56 | 4.03 | 3.72 | 3.41 |
| Portugal | 5.74 | 6.52 | 6.75 | 7.04 |
| Romania | 2.09 | 1.77 | 1.67 | 1.93 |
| Slovenia | 8.55 | 8.85 | 9.12 | 9.6 |
| Slovakia | 9.37 | 9.47 | 9.75 | 9.9 |
| Finland | 9.29 | 9.91 | 10.47 | 11.38 |
| Sweden | 16.53 | 17.14 | 18.3 | 19.16 |
| United Kingdom | 3.02 | 2.89 | 2.82 | 2.87 |
| Iceland | No Data | 1.41 | No Data | 0.44 |
| Norway | 5.05 | 4.83 | 4.85 | 4.79 |
| Switzerland | 12.73 | 13.06 | 13.53 | 14.45 |
| North Macedonia | 0.79 | 0.17 | 0.26 | No Data |
| Serbia | 0.27 | 0.44 | 0.41 | 0.39 |

***Source: Eurostat - Area under organic farming: % of utilised agricultural area (UAA)***
***Note: The indicator measures the share of total utilised agricultural area (UAA) occupied by organic farming (existing organically-farmed areas and areas in process of conversion).***

**Results and Impact of OFS**

The Target indicators specified for the assessment of M11 are listed in Table 6.26 below. This shows that very good progress has been achieved and overall targets for soil management contracts have been exceeded. The target for the RDP was to attract some 16,000 hectares of new land into production and to support 47,000 hectares of converted land. These targets were achieved in 2016.

**Table 6.26: RDP Target Indicators for Organic Farming Scheme (P4)**

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| T9- % of holdings under biodiversity/landscape contracts | 16.97% | 1.23% | 18.2% | 20.77% |
| T10- % of holdings under water management contracts | 18.40% | 2.00% | 20.4% | 20.91% |
| T12- % of holdings under soil management contracts* | 16.39% | 1.91% | 18.3% | 18.08% |

***Note:* While the area under OFS contributes to each of these targets, GLAS is the preponderant contributor in each case. The OFS contribution accounts for around 5% of these targets***
***Source: Indecon analysis of DAFM indicator data***

The support for organic farmers is not limited to only M11 of RDP and there is support in the form of capital investment grant within M4 TAMS II under the Organic Capital Investment Scheme (OCIS). This forms 5% of the total TAMS II farmers and the regional distribution of OCIS is shown in Figure 6.22. The grants were primarily obtained by farmers in the western, border, and mid-western regions comprising over 60% of the total OCIS farms.

**Figure 6.22: Regional Distribution of Organic Capital Investment Scheme (M4 TAMS II)**


***Source: Indecon analysis of DAFM data***

### M11: Organic Farming Scheme (OFS)

The OFS became operational only in 2016; therefore, the NFS data reports only two years of participation with only 2% payment recipients in 2016 and 2017 (see Table 6.27).

**Table 6.27: Organic Farming Scheme (OFS) Summary Statistics (2016-2017)**

| Year | Total Beneficiaries | Total Farms (N) | Beneficiary (%) | Total Payments Awarded (€) | Mean Amount of Payment (€) |
|---|---|---|---|---|---|
| 2016 | 15 | 861 | 2% | 96,832 | 6,455.48 |
| 2017 | 23 | 861 | 3% | 171,507 | 7,456.83 |
| **Total** | **38** | **1,722** | **2%** | **268,339** | **7,061.56** |

***Source: Indecon Analysis of NFS data***
***Note: The Amounts are adjusted for Agricultural Output Price Index (2015=100)***

The difference of means t-test reveals that the recipients of OFS do not differ significantly from non-recipients compared to several farm characteristics. The value of fertilisers is significantly less for the recipients (as expected). Apart from this, there are very few significant differences in the mean values of factors such as farmer age, and total labour and livestock units.

**Table 6.28: Difference of Means Tests for OFS Payment Recipients vs. Non- Recipients**

| Variables | Control (OFS=0) N=1,684 | Treatment (OFS=1) N=38 | Difference (C-T) | P-Value |
|---|---|---|---|---|
| Total Land Farmed (ha.) | 64.38 | 71.58 | -7.20 | 0.47 |
| Farmer Age | 54.98 | 45.95 | 9.03* | 0.00 |
| Farm Family Income (€) | 44,776.94 | 46,596.69 | -1,819.75 | 0.82 |
| Farm Gross Output (€) | 130,956.14 | 108,432.91 | 22,523.24 | 0.31 |
| Gross Output: Crops (€) | 7,937.28 | 9,825.71 | -1,888.43 | 0.77 |
| Gross Output: Livestock (€) | 102,545.51 | 69,220.45 | 33,325.07 | 0.10 |
| Total Labour Units | 1.37 | 1.11 | 0.26* | 0.02 |
| Total Livestock Units | 88.91 | 67.39 | 21.53* | 0.08 |
| Total Farm Costs (€) | 86,220.10 | 61,955.44 | 24,264.66 | 0.11 |
| Depreciation: Machinery | 5,375.71 | 4,388.54 | 987.17 | 0.38 |
| Depreciation: Buildings | 3,786.43 | 3,107.71 | 678.72 | 0.38 |
| Depreciation: Land Imp. | 624.04 | 532.36 | 91.68 | 0.58 |
| Investment: Machinery | 46,676.37 | 37,561.58 | 9,114.79 | 0.35 |
| Investment: Buildings | 61,412.11 | 48,882.06 | 12,530.05 | 0.33 |
| Investment: Livestock. | 96,997.15 | 73,839.67 | 23,157.48 | 0.11 |
| Value of Fertilisers (€) | 8,824.81 | 2,383.11 | 6,441.71* | 0.00 |

****This indicates that the different is statistically significant at the 10% confidence interval***
***Source: Indecon Analysis of NFS Data***

The results of the FE regression are shown in Table 6.29 and it can be inferred that the OFS payment has no significant impact on farm output and productivity. This is likely to be due to the very low number of observations for payment recipients which limits the capability to pick up any significant impact of OFS and the environmental objectives of the scheme. This means that more detailed counterfactual analysis is not feasible.

| Table 6.29: OFS Payment Fixed Effects Results for Output and Productivity | | |
|---|---|---|
| **Variables** | **(1) Log Output OFS FE Model** | **(2) Log Productivity OFS FE Model** |
| **OFS payment** | **-0.00948** | **-0.0672** |
| | **(0.0497)** | **(0.0580)** |
| Log of Labour Units | 0.111*** | |
| | (0.0113) | |
| Log of Farm Size | 0.707*** | 0.675*** |
| | (0.0585) | (0.0683) |
| Log of Farm Size Sq. | -0.0637*** | -0.0657*** |
| | (0.00686) | (0.00802) |
| Year (Time Trend) | 0.0205*** | 0.0222*** |
| | (0.000464) | (0.000542) |
| Farmer Age | -0.00185*** | -0.00397*** |
| | (0.000314) | (0.000366) |
| Farmer Age Sq. | 8.85e-07*** | 1.94e-06*** |
| | (1.70e-07) | (1.98e-07) |
| Log of Capital Depreciation | 0.170*** | 0.150*** |
| | (0.00751) | (0.00877) |
| Log of Fuel | 0.0510*** | 0.0388*** |
| | (0.00349) | (0.00408) |
| Constant | -33.37*** | -36.63*** |
| | (0.908) | (1.060) |
| Observations | 14,985 | 14,983 |
| R-squared | 0.365 | 0.262 |
| Number of Farm Ids | 2,068 | 2,068 |
| Soil Group FE | Yes | Yes |
| Farm System | Yes | Yes |
| Time Trend | Yes | Yes |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1*** | | |
| ***Indecon Analysis on NFS Data.*** | | |

The FE analysis for CAP indicators is shown in Table 6.30. There is no significant impact of OFS on the AEI, ADI or the farm TFP. Once again, the counterfactual analysis is not conducted due to the very small proportion of OFS participants recorded in the NFS data.

| Table 6.30: OFS Payment Fixed Effects Results for CAP Indicators | | | |
|---|---|---|---|
| Variables | (1) Ag. Entre. Income OFS FE Model | (2) Ag. Fact. Income OFS FE Model | (3) Ag. Entre. Income OFS FE Model |
| **OFS payment** | **0.0373** | **0.0672** | **-0.106** |
| | **(0.0783)** | **(0.0759)** | **(0.345)** |
| Log of Labour Units | -0.874*** | -0.801*** | |
| | (0.0198) | (0.0191) | |
| Log of Farm Size | 1.023*** | 1.014*** | -0.0201 |
| | (0.0938) | (0.0909) | (0.327) |
| Log of Farm Size Sq. | -0.0629*** | -0.0661*** | 0.0274 |
| | (0.0110) | (0.0107) | (0.0383) |
| Year (Time Trend) | 0.00867*** | 0.00786*** | 0.0186*** |
| | (0.000734) | (0.000710) | (0.00247) |
| Farmer Age | -0.00343*** | -0.00300*** | 0.00716 |
| | (0.000496) | (0.000480) | (0.00615) |
| Farmer Age Sq. | 1.65e-06*** | 1.45e-06*** | -0.000105* |
| | (2.69e-07) | (2.60e-07) | (6.24e-05) |
| Log of Capital Depreciation | -0.129*** | -0.0796*** | -0.218*** |
| | (0.0120) | (0.0115) | (0.0411) |
| Log of Fuel | -0.0184*** | -0.0187*** | -0.0457** |
| | (0.00553) | (0.00535) | (0.0178) |
| Constant | -7.855*** | -6.625*** | -35.59*** |
| | (1.436) | (1.390) | (4.866) |
| Observations | 14,882 | 14,936 | 5,292 |
| R-squared | 0.223 | 0.212 | 0.028 |
| Number of Farm Ids | 2,059 | 2,066 | 1,146 |
| Soil Group FE | Yes | Yes | Yes |
| Farm System | Yes | Yes | Yes |
| Time Trend | Yes | Yes | Yes |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1*** | | | |
| ***Indecon Analysis on NFS Data.*** | | | |

**Overall conclusion re OFS**

The OFS has a budget of €56 million over the 2014-2020 RDP. The target for the RDP was to attract some 16,000 hectares of new land into production and to support 47,000 hectares of converted land. These targets were achieved in 2016. The scheme was re-opened in November 2018 and received over 200 applications. At the end of 2018, around 41% of this budget has been spent supporting around 1,368 holdings. As these are long-term contracts, this expenditure will increase during the rest of the programme to support the maintenance of these organic holdings. The overall objective of the wider Food Harvest 2020 strategy in relation to organic farming was to have 5% of the UAA organic by 2020. However, this is not an RDP target and the latest review of the organic food sector[70] has now sets targets according the different sub-sectoral objectives.

According to most recent data from Eurostat around 1.7% of UAA was organic at the end of 2017. The support under Measure 11 made good progress towards the achievement of the specific RDP

[70]https://www.agriculture.gov.ie/media/migration/farmingsectors/organicfarming/organicsscheme/ReviewofOrganicFoodSector290119.pdf

target. The OFS supports farmers for the conversion of their lands to organic and the maintenance of these lands as organic. The most recent result indicators show that around 2.7% of the total land area is being maintained as organic. Indecon notes that the actual targets set in the RDP to have 18% of holdings under soil management contracts have been exceeded. Analysis of farmer beneficiaries who received the OFS in 2016 and 2017 indicates that these farmers are typically younger, have lower levels of livestock and use significantly less fertilizers in their production process. It is not possible at the stage to examine the impacts of the OFS on key outcome variables as there are not sufficient observations in the survey data. This however may be feasible in the ex-post evaluation. The objectives of the OFS are consistent with the overall Priorities' 4 and 5 objectives of sustainable production.

## 6.4 Measure 13: Payments to Areas of Natural or Other Specific Constraints

**Background to Measure 13**

The primary objective of support within M13 is to compensate farmers for the lost incomes and opportunity cost associated with the disadvantaged area in accordance with Article 32 of Regulation (EC) No 1305/2013. This is one of the largest supports in the RDP and represents around 35% of the total budget allocation.

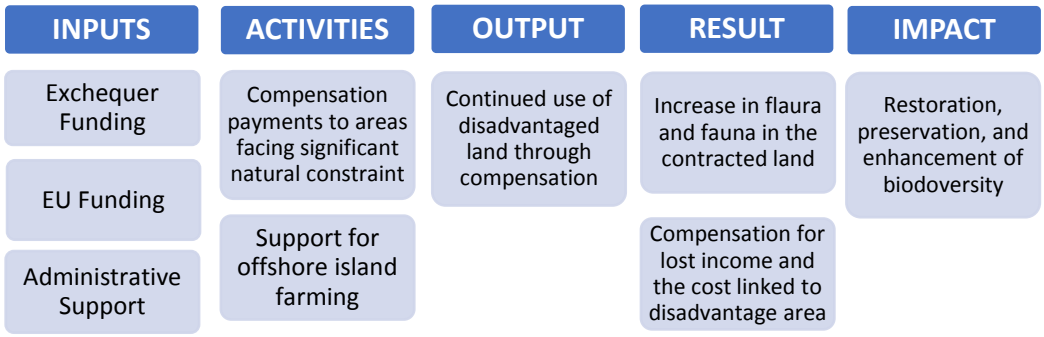
Farmers in disadvantaged areas face significant hardships due to remoteness, difficult terrain, climatic issues and poor soil quality. These issues reduce the productivity of such farms and incur higher production cost per unit as compared to farmers in other areas. Thus, the financial support provided under M13 of RDP 2014-2020 helps in increasing the sustainability of farms in such areas and reduce threat to the future viability of the farming community. There has been a recent review of the ANC areas which has led to payment based on bio-physical criteria.

The Submeasures within M13 include the following:

- Submeasure 13.2: Compensation payment for other areas facing significant natural constraints.
- Submeasure 13.3: Compensation payment to other areas affected by specific constraints (referring to offshore island farming and other areas of specific constraint).

The PLM for M13 is shown in Figure 6.23 where the input and activities summarise the submeasures as listed above with key results and impacts related to restoration, preservation and enhancement of bio-diversity.

**Figure 6.23: Programme Logic Model - Measure 13**




*Source: Indecon*

Measure 13.2 is an extension to the previous Less Favoured Area (LFA) scheme and the Disadvantaged Areas Scheme. However, during 2018/2019, these LFAs have be replaced by newly designated ANCs through scientific delineation process. Specifically, M13.2 serves the following objectives:[71]

- 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.

The most relevant focus areas/common evaluation question addressed by ANC scheme:

- FA4A: Restoring, preserving and enhancing biodiversity, including Natura 2000 areas.

The payment structure and eligibility to receive support under this scheme are discussed in the next sub-sections.

*Input and Activities of ANC Scheme*

The payment structure for ANC under M13.2 is shown in Table 6.31. The payment ranges from €82-€109 with the highest payment given to farmers residing in mountainous regions.

**Table 6.31: Payment Structure for ANC**

| Area Designation | Payable Area |
|---|---|
| Category 1 Land | €148 on the first 12 eligible hectares or part thereof, and € 112 per hectare on remaining hectares up to a maximum of 34 hectares |
| Category 2 Land | €111 on the first 10 eligible hectares or part thereof, and €104 per hectare on remaining hectares up to a maximum of 30 hectares |
| Category 3 Land | €93 on the first 8 eligible hectares or part thereof, and €88.25 per hectare on remaining hectares up to a maximum of 30 hectares |
| ***Source: Ireland- Rural Development Programme (National). 6th Amendment Feb 2019.*** | |

In terms of the total public spending, Table 6.32 shows that the size of target funding for M13 is very large with over €1.4 billion allocated for the scheme. By the end of 2018, over €1 billion in funding has been allocated to ANCs with average funding of €206 million per annum from 2014 to 2018.

[71] Ireland's Rural Development Programme 2014-2020. Draft of July, 2014. Retrieved from: https://www.agriculture.gov.ie/media/migration/agarchive/ruralenvironment/preparatoryworkfortherdp2014-2020/RDPFinaldraft03072014.pdf

| Table 6.32: RDP Funding Input for ANC (FA4A) | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2023*** |
| Total Public Expenditure (€ Millions) | 608.71 | 205.19 | 228.63 | 1,042.38 | 1490.0 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** <br> ****: Includes Submeasure 13.3 (Areas facing specific constraints)*** | | | | | |

The participation in the scheme is conditional to certain eligibility conditions for the farmers. The beneficiaries of the scheme must:[72]

- 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 in the given year of application;
- Comply with Cross Compliance requirements under Article 92 of Regulation (EU) No 1306/2013; and
- Have a holding that meets the minimum stocking levels (grazing requirement).

Further, the minimum required stocking density is 0.15 livestock units per hectare that can be lower if that can be justified on environmental grounds. The calculation of the stocking density for the scheme on yearly basis is carried out using the database on the identification and registration of animals, the sheep census data, flock registers and animal passports.

The outcomes in terms of the number of holdings and farm area supported are shown in Table 6.33. Around 100,000 farms were supported from 2014-2018 per annum. This corresponds to an average supported land-mass of around 2.4 million hectares each year from 2014-2018.

| Table 6.33: RDP outcomes for ANC (FA4A) | | | | | | |
|---|---|---|---|---|---|---|
| **Indicators** | **2014** | **2015** | **2016** | **2017** | **2018** | **Planned Output 2023** |
| No. of holdings supported* | 110,419 | 104,522 | 96,514 | 92,613 | 94,043 | - |
| Total area facing natural constraints (ha millions) | 2.87 | 2.87 | 2.09 | 2.08 | 2.13 | 3.30 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** <br> ****: Includes Submeasure 13.3 (Areas facing specific constraints)*** | | | | | | |

[72] Ibid.

**Submeasure 13.3: Specific Support for Off-shore Island Farming**

In addition to ANCs, M13 also supports specific areas such as offshore-islands in recognition to island farmers facing extensive constraints. In Ireland, farming on islands is in continuous decline and holdings are unable to meet minimum yields for grazing and limitation for harvesting fodder. Maintenance of traditional farming on islands is critical to deliver the continued environmental support. This is achieved under Submeasure 13.3 where support is provided in order to reduce the likelihood of abandonment of island farming. The key focus area/CEQ addressed by M13.3 is same as M13.2 and relates to the restoration, preservation, and enhancement of biodiversity, including Natura 2000 areas (FA4A).

The payment structure for M13.3 is shown in Table 6.34, where annual payments are made per hectares. The rates suggest regressive payment structure with the financial support reducing with increasing farming area. The payment structure is based on relevant economies of scale and the average payment for island land is estimated to have been around €238 per hectare so far.

**Table 6.34: Payment Structure for ANC (M13.3)**

| Farm Area Designation | Payment Rates |
|---|---|
| The first 20 hectares for island land farmed | €250 |
| 20 to 34 hectares | €170 |
| 34 to 40 hectares | €70 |
| Over 40 hectares | €No further payment |

***Source: Ireland- Rural Development Programme (National). Released on 28th May 2015.***

The public spending made for M13.3 is shown in Table 6.35. A total of €8.9 million have been used to support off-shore island farming with average payment of €1.8 million each year from 2015-2017.

**Table 6.35: RDP Funding input for Off-shore Island Farming (FA4A)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure (€ Millions) | 4.07 | 2.29 | 2.51 | 8.87 | |

***Source: Indecon Analysis of DAFM Indicator Data.***

**Output of off-shore Island farming support**

The eligibility for this funding support requires farmers to be located on an offshore island and must be in fulfilment of the eligibility conditions which apply to the ANC scheme apart from the requirement related to the minimum farm area of three hectares. So far, the scheme has provided support to 37,255 hectares of land cumulated from 2015-2018 implying an average of 9,313 hectares annually (see Table 6.36).

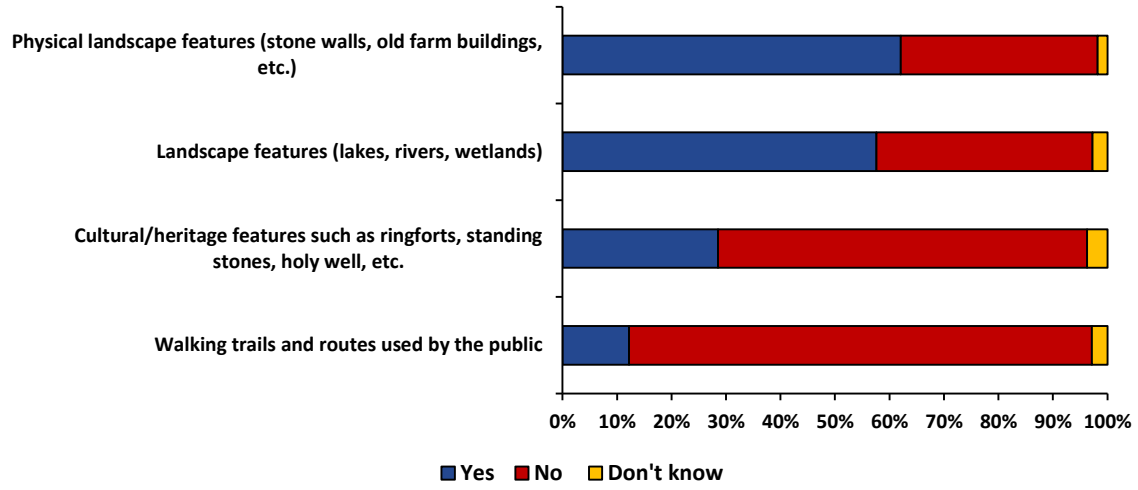
| Table 6.36: RDP outcomes for Off-shore Island Farming (FA4A) | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| Total area (ha) facing natural constraints (islands) | 17,096 | 9,164 | 10,995 | 37,255.2 | 404,648* |

**** The 404,648 ha relates to the revised area for offshore island and areas facing other specific constraints arising from the ANC area re-designation approved in Feb 2018.***
***Source: Indecon Analysis of DAFM Indicator Data.***

### Public Good aspects of the ANC

A notable rationale for the ANC scheme is the public good aspects of agriculture that it directly supports. Indecon survey results suggests that ANC farms contain physical features such as stone walls, old farm buildings, lakes, rivers, wetlands, and several cultural heritage sites that add value to the environment and preserve biodiversity (see Figure 6.24). These findings should reviewed on a regular basis and Indecon believe that there may be merit in seeking information on these public good aspects in ANC support applications. We note the estimates may be an overestimate of some public good features[73]. However, public good features of agriculture are likely to go beyond the features outlined in the figure below. For example, there are other benefits arising from the programme including the sustainability of employment in rural areas.

**Figure 6.24: Farm features on the ANC supported farms**




***Source: Indecon survey***

[73] Indecon note that the estimated number of walking trails appears high but this likely reflects commonages/public access routes rather than formalised walking trails.

The public good aspects of Irish agriculture are difficult to measure but are an important potential benefit of ANC measures. An overview on the valuation of public goods aspects of RDP is presented in the Box below.

**Box 6.1: Valuation of the Public good aspects of RDP**

In this box, we consider potential estimates and techniques for quantifying the monetary value of public good aspects of agriculture and their applicability to the RDP. Specifically we consider the estimates for biodiversity, landscape, and water quality. Existing research studies suggests a number of techniques suited for this purpose including revealed preference methods, hedonic pricing methods, willing to pay WTP surveys, contingent valuation methods (CUM), and financial proxying. It should be noted that placing monetary value on a non-market good is complicated, and there is a degree to which these methods are open to criticism. Hence, measures of valuation may differ across different estimation techniques even for the same geographical locations.

A meta-analysis conducted by Ciaian and Paloma (2011) across 96 estimates of WTP from 33 studies suggests a mean estimate of 149€/ha for EU landscape. Furthermore, the study estimates the landscape value for Ireland as 119€/ha using a benefit-transfer function. A study by Howley (2012) used CVM to survey 500 participants and estimated the WTP of €44 per person/year for agricultural activities aimed at protecting the traditional farm landscape. In addition to the valuation of landscape, Christie et al. (2004) use CVM and choice experiment methods to estimate the average value of biodiversity as equivalent to €83 and €60 per household/year respectively.[74] Alternative estimates by O'Leary et al. (2004) from the survey of 600 individuals suggest average WTP of €77 and €23 for landscape with wildlife habitat and bio-diversity under 'lot of action' and 'some action' for preservation respectively. Somewhat higher results were evident from a National Survey of Heritage Council by Keith Simpson Associates et al. (2007) which suggested an average WTP estimate of €46.83 per person per year for additional measures to protect both cultural and natural heritage.

In terms of water quality, the UK Environmental Agency in 2013 updated the National Water Environment Benefit Survey using Dichotomous Choice Contingent Valuation (DCCV) and arrived at the central estimate of €20,880 for bad to poor, €24,000 for poor to moderate and €27,840 from moderate to good quality of river per km per year aggregated for overall population. With respect to Ireland, Buckley et al. (2016) estimate the WTP of €19 per respondent/year for achieving good status across all rivers, while Murphy et al. (2011) suggests €45.64 per respondent/year for good level of water clarity and smell from a 2012 survey of 850 respondents in Ireland.

Indecon has evaluated these and other studies to derive illustrative estimates of the public good aspects of the RDP 2014-2020. In our analysis, we considered using WTP values for landscape and biodiversity to calculate indicative estimates of the environmental value generated by RDP funding such as ANC (M13) and LEADER (M19). With total UAA of 2.4 million hectares supported by the ANC per year from 2014-2018 and using a WTP estimate of approximately €120 per ha/year, the total landscape value generated by RDP from 2014-2020 is estimated to be around €285 million per annum. Given that the main measures of the programme commenced in 2015 this suggests that the landscape benefits over a three-year period to 2018 could have had a benefit of around €855 million. In addition, there are benefits arising from biodiversity. Using an estimate of €45 per person/year from the international evidence, this suggests an estimate of €15.8 million of value generated per year for cultural and natural heritage across 0.35 million visitors benefitting from Rural Tourism Project under LEADER in 2018. If these projects have a ten-year life-span and discounting the benefits of 4% per this would suggest an NPV for these additional benefits of €133.3 million.

***Source: Indecon-CCRI***

[74] 1GBP=1.42 EUR on 1 January 2004. Source: https://fxtop.com/en/historical-currency-converter.php?A=1&C1=GBP&C2=EUR&DD=&MM=&YYYY=2004&B=1&P=&I=1&btnOK=Go%21

### Results of Measure 13

Target 9 is a key indicator that captures the results of M13. The results of this are shown below and indicate that the percentage of holdings supported will be close to the planned level by the end of the programming period.

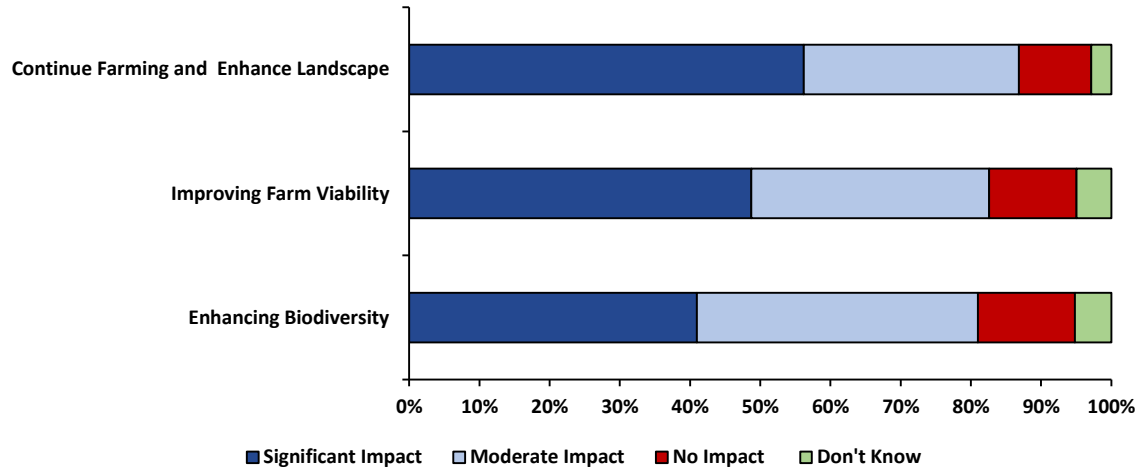
**Table 6.37: RDP Target Indicators for M13**

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| T9- % of holdings under biodiversity/landscape contracts | 16.97% | 1.23% | 18.2% | 20.77% |

***Source: Indecon Analysis of DAFM Indicator Data.***

In terms of the impact of ANC assistance, the majority of farmers suggested there was a significant farm impact associated with ANC for enhancement of landscape and continuation of farming. Farmers also suggested that that the ANC support assists in improving farm viability and enhancement of biodiversity (see Figure 6.25).

**Figure 6.25: Impact of RDP assistance under ANC scheme**




***Source: Indecon survey***

### Impact of Measure 13

The ANC (formerly Less Favoured Area/Disadvantaged Area) has been part of RDP since 2001 and forms the core of RDP funding in Ireland. The NFS data suggests 70.16% of the sample received the ANC support from 2014-2017 with the yearly distribution shown in Table 6.38.

| Table 6.38: ANC support Summary Statistics (2014-2017) | | | | | |
|---|---|---|---|---|---|
| Year | Total Beneficiaries | Total Farms (N) | Beneficiary (%) | Total Payments Awarded (€) | Mean Amount of Payment (€) |
| 2014 | 617 | 892 | 69.17% | 1,679,204 | 2,722 |
| 2015 | 637 | 898 | 70.94% | 1,663,900 | 2,612 |
| 2016 | 601 | 861 | 69.80% | 1,497,760 | 2,492 |
| 2017 | 609 | 861 | 70.73% | 1,655,240 | 2,718 |
| **Total** | **2,464** | **3,512** | **70.16%** | **6,496,104** | **2,636** |
| ***Source: Indecon Analysis of NFS data*** | | | | | |
| ***Note: The Amounts are adjusted for Agricultural Output Price Index (2015=100)*** | | | | | |

The farmers receiving ANC differ significantly from farmers not receiving the payment on a number of factors as shown in the difference of means t-test results in Table 6.39.

| Table 6.39: Difference of Means Tests for ANC Farmers vs. Non-ANC Farmers | | | | |
|---|---|---|---|---|
| Variables | Control (ANC=0) (N=1,048) | Treatment (ANC=1) (N=2,464) | Difference (C-T) | P-Value |
| Total Land Farmed (ha.) | 66.49 | 63.68 | 2.81 | 0.19 |
| Farmer Age | 54.23 | 54.69 | -0.47 | 0.32 |
| Farm Family Income (€) | 53,883.82 | 37,940.75 | 15,943.06*** | 0.00 |
| Farm Gross Output (€) | 162,714.81 | 112,076.69 | 50,638.12*** | 0.00 |
| Gross Output: Crops (€) | 21,940.76 | 2,554.22 | 19,386.54*** | 0.00 |
| Gross Output: Livestock (€) | 118,210.66 | 89,219.22 | 28,991.44*** | 0.00 |
| Total Labour Units | 1.46 | 1.32 | 0.13*** | 0.00 |
| Total Livestock Units | 94.32 | 82.47 | 11.86*** | 0.00 |
| Total Farm Costs (€) | 108,861.65 | 74,146.67 | 34,714.98*** | 0.00 |
| Depreciation: Machinery | 7,810.56 | 4,957.52 | 2,853.04*** | 0.00 |
| Depreciation: Buildings | 4,407.32 | 3,430.29 | 977.04*** | 0.00 |
| Depreciation: Land Imp. | 662.97 | 554.95 | 108.02*** | 0.00 |
| Investment: Machinery | 64,132.00 | 39,778.74 | 24,353.26*** | 0.00 |
| Investment: Buildings | 71,771.46 | 55,385.38 | 16,386.08*** | 0.00 |
| Investment: Livestock. | 102,844.18 | 89,614.97 | 13,229.21*** | 0.00 |
| Value of Fertilisers (€) | 12,773.00 | 7,558.85 | 5,214.16*** | 0.00 |
| ***Source: Indecon Analysis of NFS Data*** | | | | |

Farmers who receive the ANC support tend to have lower farm family income and output. The results for the FE regression for farm output and productivity are shown in Table 6.40, and this suggests a positive relationship between receipt of an ANC payments and output and farm productivity with effect sizes of 3.8% and 6.5%, respectively. However, caution is needed in interpreting the results as this does not represent a counterfactual analysis. Such an analysis is not feasible as part this interim evaluation as over 70% of the NFS sample received ANC payments.

| Table 6.40: ANC Support Fixed Effects Regression Results for Output and Productivity | | |
|---|---|---|
| Variables | (1) Log Output ANC FE Model | (2) Log Productivity ANC FE Model |
| **ANC support** | **0.0380*** ** | **0.0645*** ** |
| | **(0.00733)** | **(0.00855)** |
| Log of Labour Units | 0.114*** | |
| | (0.0113) | |
| Log of Farm Size | 0.705*** | 0.672*** |
| | (0.0584) | (0.0682) |
| Log of Farm Size Sq. | -0.0637*** | -0.0657*** |
| | (0.00685) | (0.00800) |
| Year (Time Trend) | 0.0200*** | 0.0214*** |
| | (0.000470) | (0.000549) |
| Farmer Age | -0.00188*** | -0.00402*** |
| | (0.000314) | (0.000365) |
| Farmer Age Sq. | 9.03e-07*** | 1.96e-06*** |
| | (1.70e-07) | (1.98e-07) |
| Log of Capital Depreciation | 0.171*** | 0.152*** |
| | (0.00750) | (0.00876) |
| Log of Fuel | 0.0505*** | 0.0381*** |
| | (0.00349) | (0.00407) |
| Constant | -32.51*** | -35.11*** |
| | (0.920) | (1.074) |
| Observations | 14,985 | 14,983 |
| R-squared | 0.366 | 0.265 |
| Number of Farm Ids | 2,068 | 2,068 |
| Soil Group FE | Yes | Yes |
| Farm System | Yes | Yes |
| Time Trend | Yes | Yes |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1*** | | |
| ***Indecon Analysis on NFS Data.*** | | |

In addition to outcomes related to farm output and productivity, the impact of RDP supports is assessed on CAP impact indicators viz. Agricultural Entrepreneurial Income, Agricultural Factor Income, and Total Factor Productivity. The FE regression results are shown in Table 6.41 and a positive relationship is suggested between all three of the aforementioned CAP impact indicators, with effect sizes of 5% for AEI, 5.2% for AFI and 2.9% for TFP. We would caution against any causal interpretation of these results.

| Table 6.41: ANC support Fixed Effects Regression Results for CAP Indicators | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| | Ag. Entre. Income | Ag. Fact. Income | TFP |
| Variables | ANC FE Model | ANC FE Model | ANC FE Model |
| **ANC support** | **0.0498*** ** | **0.0518*** ** | **0.291*** ** |
| | **(0.0116)** | **(0.0112)** | **(0.0408)** |
| Log of Labour Units | -0.870*** | -0.796*** | |
| | (0.0198) | (0.0191) | |
| Log of Farm Size | 1.021*** | 1.011*** | -0.0966 |
| | (0.0937) | (0.0908) | (0.325) |
| Log of Farm Size Sq. | -0.0630*** | -0.0662*** | 0.0350 |
| | (0.0110) | (0.0107) | (0.0380) |
| Year (Time Trend) | 0.00813*** | 0.00731*** | 0.0163*** |
| | (0.000744) | (0.000720) | (0.00247) |
| Farmer Age | -0.00348*** | -0.00306*** | 0.00712 |
| | (0.000496) | (0.000480) | (0.00611) |
| Farmer Age Sq. | 1.68e-06*** | 1.48e-06*** | -0.000106* |
| | (2.69e-07) | (2.60e-07) | (6.20e-05) |
| Log of Capital Depreciation | -0.128*** | -0.0782*** | -0.212*** |
| | (0.0120) | (0.0115) | (0.0409) |
| Log of Fuel | -0.0193*** | -0.0197*** | -0.0470*** |
| | (0.00552) | (0.00534) | (0.0177) |
| Constant | -6.780*** | -5.542*** | -30.92*** |
| | (1.456) | (1.409) | (4.876) |
| Observations | 14,882 | 14,936 | 5,292 |
| R-squared | 0.225 | 0.213 | 0.040 |
| Number of Farm Ids | 2,059 | 2,066 | 1,146 |
| Soil Group FE | Yes | Yes | Yes |
| Farm System | Yes | Yes | Yes |
| Time Trend | Yes | Yes | Yes |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1*** | | | |
| ***Indecon Analysis on NFS Data.*** | | | |

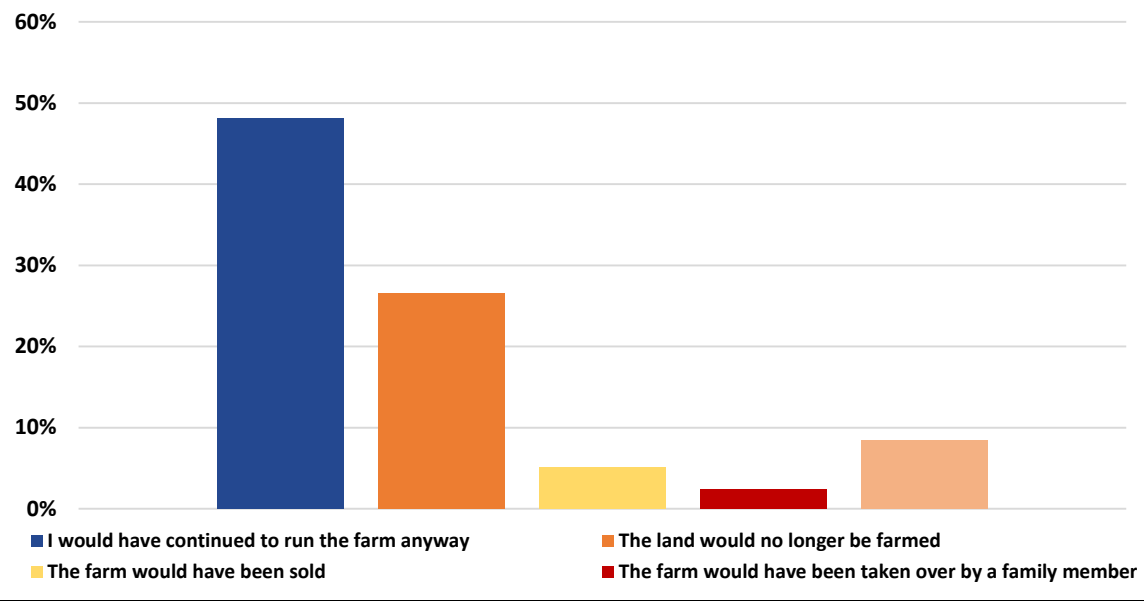
The typical ANC payment over the period was around €2,600 per annum. This compares to a typical gross output of around €82,000 and family farm income of around €27,500. The ANC supports represents around 3.2% of total output and around 9% of family farm income which are broadly consistent with the econometric findings outlined above. It is clear that ANC supports are an important source of income for farms that are significantly below the average farm income.

### Findings from Survey Research

The impact of ANC is also captured from the views of farmers in relation to the potential outcomes if the ANC payment was not available (see Figure 6.26). The survey results show that 27% of respondents believed that the land would no longer be farmed if ANC assistance was not available, while a very small minority of 7% suggested that the farm would have been sold or taken over by a family member. This evidence has a number of implications in particular in terms of land

abandonment. Such abandonment would have significant implications for biodiversity and other public good aspects of agriculture such as landscapes and other amenities.

**Figure 6.26: Outcomes if ANC payment was unavailable**




*Source: Indecon survey*

## 6.5 Measure 7, Submeasure 7.6: GLAS Traditional Farm Building

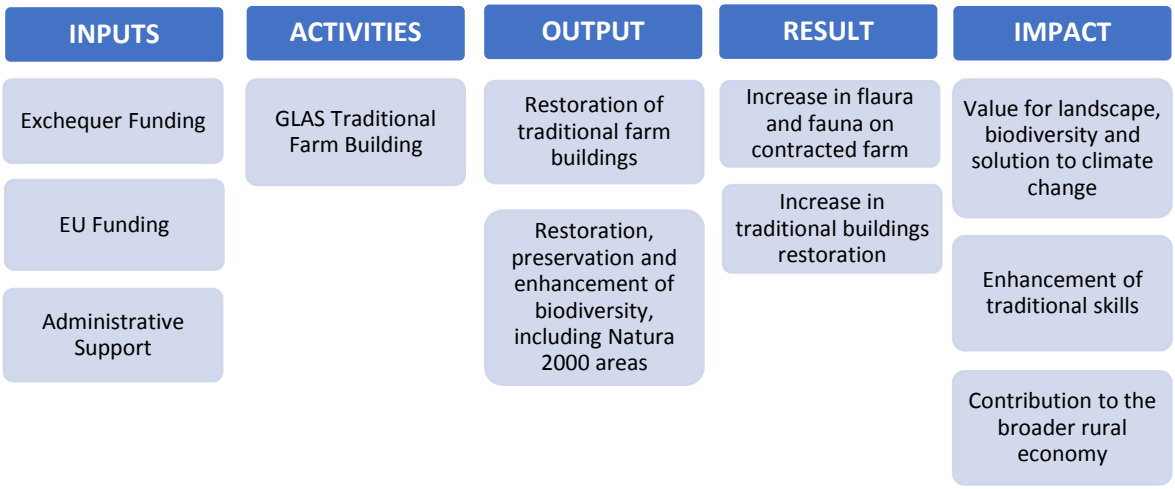
The Heritage Council administers the GLAS traditional farm building under Submeasure 7.6 and builds on the success of the Heritage Building Scheme which operated under REPS 4 (2007-2013 RDP).[75] The objective of this programme is to restore small traditional farm buildings and various other structure that are of significant cultural and heritage value. This is complementary measure to GLAS and therefore farmers are eligible to participate in this programme only if they are enrolled in GLAS. Furthermore, this measure intends to encourage ways in which the understanding and management of both the natural and built/cultural heritage is improved. The programme is expected to benefit areas such as preservation and conservation of landscape, biodiversity, climate change, enhancement of traditional skills and contribution to the broader rural economy. The submeasure addresses Focus Area 4A:

- FA4A: Restoring, preserving and enhancing biodiversity, including Natura 2000 areas, and in areas facing natural or other specific constraints and high nature value farming, as well as the state of European landscapes.

The PLM for Submeasure 7.6 is shown in Figure 6.27 which shows different steps involved in implementing the programme. These are discussed in more detail in the following sections.

[75] Summary of Rural Development Programme Ireland 2014-2020 (September 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

**Figure 6.27: Programme Logic Model - Measure 7**




***Source: Indecon***

The Heritage Council undertakes farm inspections and work commences only after the inspection is completed and conservation specifications agreed. There is a need for the applicants to employ a conservation consultant in order to seek advice on the project and sign-off the completion.[76] This cost can be included in the overall costs for the project grant. The grants awarded under this scheme cannot exceed 75% of the cost of the works and a maximum grant of €25,000 is available. The total public expenditure by 2018 was over €2.3 million, representing 39% of the total target amount of €6 million, as shown in Table 6.42.

**Table 6.42: RDP Input for Traditional Farm Building Scheme (FA4A)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure (€ Millions) | 0.73 | 0.75 | 0.84 | 2.31 | 6.00 |

***Source: Indecon Analysis of DAFM Indicator Data.***

The financial aid under Submeasure 7.6 has led to farm investments worth around €3 million and supported 157 actions from 2014-2018 with 234 buildings restored so far. This represents 68% of the target of 350 buildings over the tenure of the programme (see Table 6.43).

[76] The 2017 Evaluation on the Implementation of Ireland's Rural Development Programme 2014-2020. Department of Agriculture Food and The Marine: Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/2017EvaluationofIrelandsRDP180917.pdf

| Table 6.43: RDP Mandatory Indicators for Traditional Farm Building Scheme (FA4A) | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| Total investment - public + private (€ Millions) | 1.04 | 1.07 | 1.21 | 3.32 | |
| No. of actions/operations supported | 48 | 55 | 54 | 157 | |
| No. of traditional buildings restored | 72 | 68 | 94 | 234 | 350 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | | |

The GLAS for farm buildings is a relatively small scheme that benefits a small percentage of beneficiaries.

## 6.6 Measure 16.1: European Innovation Projects (EIPs)

As discussed previously, there is also significant cross-over between certain measures in terms of their principle objectives. Such a measure is 16.1 which has impacts on enhancing competitiveness and promoting sustainable management. A full description and assessment of the various inputs, outputs, results and impacts of this measure is included in section 7.6.

## 6.7 Summary of findings

- Training to support the large agri-environment schemes (GLAS and BDGP) was implemented in the early stages of the 2014-2020 RDP. This training was a requirement for participation in these schemes. Overall, the training appears to have been worthwhile.
- GLAS replaced the previous AEOS scheme and is the main agri-environmental measure of the RDP. Analysis indicates the beneficiaries of GLAS are typically have lower income, have less capital investment and have lower levels of livestock and thus are likely to have a lower environmental impact than non-GLAS participants. Our econometric analysis indicates that GLAS is having a small positive impact on farm income. Survey evidence indicates that GLAS has achieved a number of key benefits including maintaining hedgerows, increasing biodiversity on farms and improving water quality.
- Evidence produced by ADAS suggests that GLAS has achieved a number of key benefits including maintaining hedgerows, increasing biodiversity on farms and improving water quality. Evidence collected at the farm level by ADAS indicates that over 75% of required actions were completed. The findings from the ADAS biodiversity report indicated that around 66% of sites were deemed to have outcomes that could not be achieved without GLAS support. 88% of farms had implemented actions appropriately with no missed opportunities.
- Modelling undertaken by ADAS on the environment impact of GLAS on water quality and pollutants suggests that GLAS will lead to a long-term annual reduction of 5-9% for nitrate, phosphorus, nitrous oxide and methane on GLAS supported farms. The overall national impact is likely to be lower. ADAS concludes that the major cause of these reductions is likely to be the Low Input Permanent Pasture action (and the comparable Natura Habitat and

Farmland Bird actions). This action has the highest level of uptake. Further background material on this is included in the ADAS modelling report.

- Recent data from EPA indicate that Ammonia emissions have increased in 2017 which reflects an increase in agricultural production. These increase in production was achieved with a lower level of ammonia emission per unit of output.
- BDGP targets the genetics of the Irish beef herd to improve its environmental impact. These schemes will take a large number of years before impacts are clearly measurable. This is due to replacement rates in the herd and non-BDGP herds. It is not possible to make a definitive conclusion on the success or otherwise of the BDGP at this stage. However, early preliminary evidence indicates that BDGP cows are calving at younger ages which is consistent with the objectives of the BDGP scheme.
- It must also be noted the types of farms that are typically in receipt of BDGP support. Most of these farmer beneficiaries are in the western half of the country where the land quality is poorer. It also worth noting that a significant proportion of BDGP farmers also receive GLAS support.
- The largest measure in the RDP is Measure 13 (ANC). This support is received by around 70% of active farmer beneficiaries. This support is provided to farm holdings who face natural disadvantages in their farmland. One of the rationales for this support is the public good value of maintaining agricultural land. New survey evidence suggests that around 27% of ANC supported farms would have become abandoned without this support. Indecon believes that it is likely that farmers interpreted this to mean to all payments rather than just the impact of ANC. Thus, this figure may be an overestimate of the impact of ANC on land abandonment.
- In order to examine the public good aspect of the support for farmers thought the ANC scheme, Indecon have surveyed farmer beneficiaries on the public good-type features that exist on their farms. These features are likely to have a significant non-monetary value associated with them. While there is a large range in the estimates for the monetary value of public goods, international evidence provides some indicative estimates of the landscape value which is around €120 per hectare supported per year. Based on applying this value the indicative estimate of the landscape value generated by RDP from 2014-2020 is around €285 million per annum. Our analysis indicates that ANC supports are an important source of income for farms that are significantly below the average farm income.

# 7 Evaluation of Enhancing Competitiveness Related Priority Areas

## 7.1 Introduction

In this section, we examine the RDP measures that typically relate to Priority Areas 1-3 and their associated focus areas include measures to foster knowledge transfer and innovation, enhance the viability and competitiveness of agriculture, and to promote food chain organisation and risk management in agriculture. It is clear from the table below that many of the measures will also impact on Priority Areas 4 and 5. Priorities 4 and 5 have an agri-environmental focus and we examined these in the previous section.

A summary of the different measures and how they relate to the different focus areas is shown in Table 7.1. Measures like Knowledge Transfer Groups and the European Innovation Partnerships (EIPs) are relatively small measures of the RDP in budgetary terms but have potential impacts on a number of different focus areas across both enhanced competitiveness and environmental sustainability.

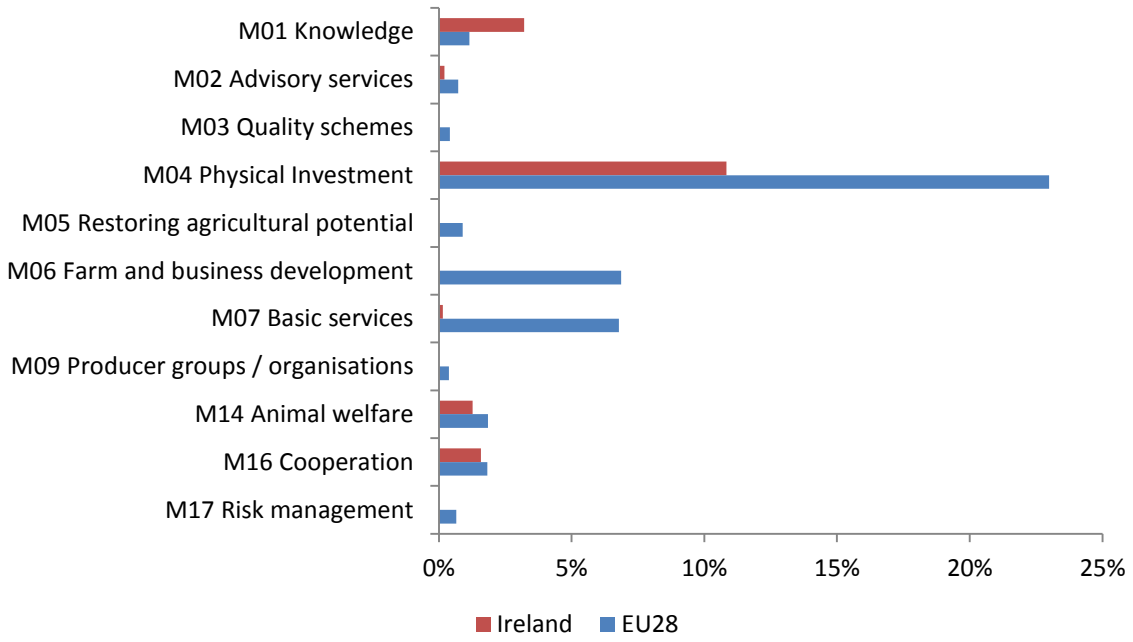
**Table 7.1: Measure, targeted Focus Areas and Priority Areas**

| Measures | Submeasures | Focus Areas |
|---|---|---|
| M1: Knowledge Transfer and Information Action | M1.1: Knowledge Transfer Groups | FA1A, FA1C, FA2A, FA3B, FA4A, FA4B, FA4C, FA5D |
| | M1.1: Training in support of GLAS, BDGP | FA1A, FA1C, FA4A, FA4B, FA4C, FA5D |
| M2: Advisory Services, farm management, and farm relief services | M2.1: Support for setting up of Producer Organisation | FA3A |
| | M2.1: Animal Health and Welfare- On farm Advice | FA1A, FA3B |
| | M2.3: CPD for Agricultural services | FA1A, FA2A, FA4A, FA4B, FA4C, FA5D |
| | M2.3: Animal Health and Welfare: Training for Advisors | FA1A, FA3B |
| M4: Investment in Physical Assets | M4.1: Targeted Agricultural Modernisation Schemes (TAMS II) | FA2A, FA2B, FA3B, FA4A, FA5B, FA5D |
| M14: Animal Welfare | M14.1: Animal Welfare Scheme (Sheep) | FA3A |
| M16: Co-operation | M16.1: European Innovation Partnership (EIP)- General EIPs | FA1A, FA1B, FA2A, FA2B, FA3A, FA3B |
| | M16.1: EIPs- Locally led Hen Harrier and Freshwater pearl mussel project | FA1A, FA1B, FA4A, FA4B, FA4C |
| | M16.1: EIPs- Locally led environmental and climate projects | FA1A, FA1B, FA4A, FA4B, FA4C, FA5A, FA5B, FA5C, FA5D, FA5E |
| | M16.3: Support for Collaborative Farming | FA1A, FA1B, FA2A, FA2B |

***Source: Indecon Review of RDP Documents***

It is interesting to note how Ireland compares against the RDP budgets of the other EU-28 countries. This analysis is shown in Figure 7.1 and highlights that with the exception of Measure 1, Ireland spends significantly less, in percentage terms, on many of measures that directly address Priorities 1-3 as compared to other Member States.

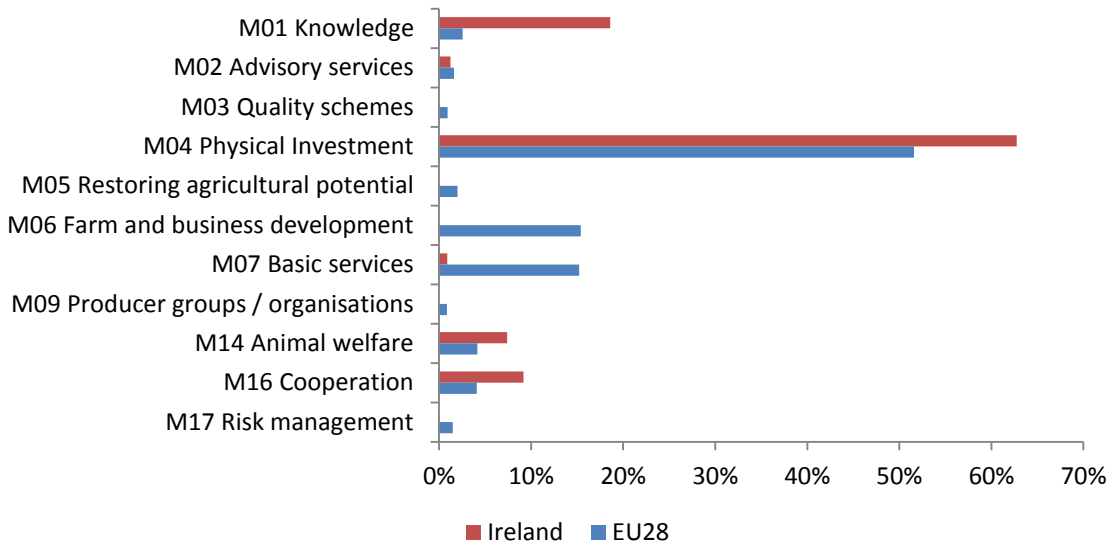
**Figure 7.1: RDP Expenditure on Measures in Priority Areas 1 to 3 - Ireland v EU28 (As a Percentage of Overall RDP Expenditure)**




***Source: Indecon analysis of EU data***

It is also important to examine the shares of expenditures within the competitiveness of agriculture grouping. The majority of the expenditure in the group is on Measure 4 which deals with investment in physical assets. Ireland appears to have placed a significant emphasis on supporting physical investment.

**Figure 7.2: RDP Expenditure on Measures in Priority Areas 1 to 3 - Ireland v EU27 (As a Percentage of Priority 1 to 3 Expenditure)**




***Source: Indecon analysis***

There a number of key target indicators that directly impact on the competitiveness of agriculture. These are shown in Table 7.2 and highlight that a significant increase in the number of supported holdings will be needed to achieve the level of planned output for Target Indicator 4.

**Table 7.2: RDP Target Indicators relating to Competitiveness of Agriculture**

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| % of expenditure on Measures addressing Focus Area 1A | 1.73% | 4.92% | 2.60% | 3.6% |
| T3 - No. of participants trained under Measure 1, including KT, BDGP & GLAS. | 67,689 | 24,909 | 92,598 | 111,600 |
| T4 - % of holdings with support for investments in restructuring/modernisation[77]. | 1.37% | 1.29% | 2.66% | 9.11% |
| T5 - % of holdings RDP supports for young farmers* | 0.41% | 0.75% | 1.16% | 2.86% |
| T7 - % of farms in risk management schemes | Not applicable | Not applicable | Not applicable | Not applicable |

**** This is based on the Young farmers supported through TAMS II***
***Source: Indecon Analysis of DAFM Indicator Data***

[77] TAMS supports programmes under FA2A only: Dairy Equipment Scheme, Animal Welfare & Nutrient Storage Scheme, Organic Capital Investment Scheme and Tillage Capital Investment Scheme

## 7.2 Knowledge Transfer (KT) and Information Actions

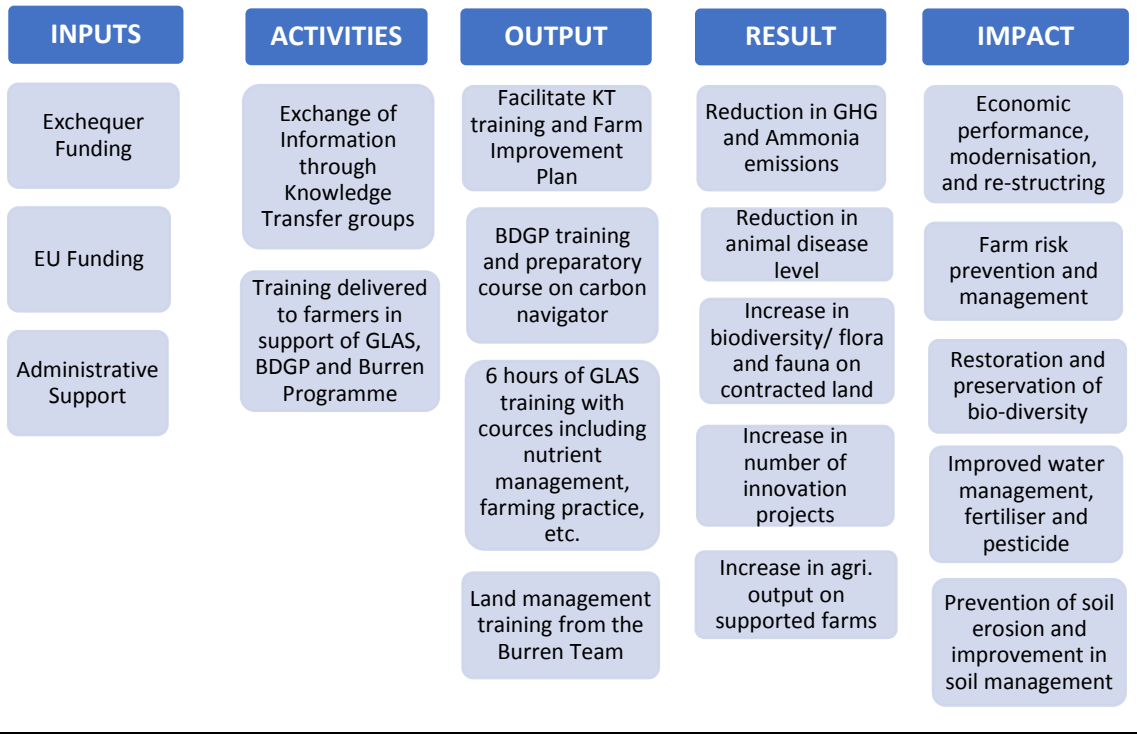
According to Ireland's RDP 2014-2020 programme report,[78] the profitability levels of many Irish farms were found to be under threat. Specifically, the beef sector relied significantly on direct payments and subsidies to remain in operation. Therefore, knowledge transfer and information action under Measure 1 was identified as one means to address issues related to production quality, input costs, meeting environmental regulation, and animal welfare.

The importance of Knowledge Transfer is also repeated in the Smart, Green Growth of Food Harvest 2020 where it is recommended that farmers should be encouraged to optimise production by adopting new technology and best commercial practices. FoodWise 2025 also recommends the full implementation of the RDP Knowledge Transfer measures. This is complemented by the RDP SWOT analysis and stakeholder consultation process, which identified the need for knowledge transfer in areas such as business skills, environmental and climate change issues, and animal health and welfare. As well as looking at the impact of various measures on different focus areas and priority areas, it is also important to examine the logic behind individual measures and consider the direct impacts of these. In this section, we will consider programme logic models at the individual measure level.

Figure 7.3 sets out the Programme Logic Model (PLM) for Measure 1 and highlights the inputs, activities, outputs, results and the overall impact on key agricultural outcomes. The discussion of submeasures in subsequent sections follows closely the logic models for each Measure and demonstrates how RDP resources (inputs) lead to actions (activities) that are reflected as changes to existing agricultural systems (outputs) such that desired objectives (results), affecting the overall sector (impact) are obtained. Given the complementarity between the submeasures, there is only a single programme logic model for Measure 1 and the discussion of associated submeasures expands on the PLM elements of input, activities and output, while the results and impact are presented at the measure level.

[78] Ireland's Rural Development Programme 2014-2020. Draft of July, 2014. Retrieved from: https://www.agriculture.gov.ie/media/migration/agarchive/ruralenvironment/preparatoryworkfortherdp2014-2020/RDPFinaldraft03072014.pdf

**Figure 7.3: Programme Logic Model - Measure 1**




***Source: Indecon***

**Measure 1.1: Training delivered in support of the Knowledge Transfer (KT) Groups**

There are efficiency gains from increasing the knowledge base in the agricultural sector which can potentially enhance competitiveness in the sector. The setting up of KT groups facilitates farmer meetings with qualified advisors for exchange of information and best practice in areas involving animal health and management, profitability and financial management, grassland management, sustainability, farm health and safety, farm progression, and breeding planning. The farming sectors covered under M1.1 include beef, dairy, sheep, poultry, equine, and tillage. The programme strategy document for Ireland's RDP 2014-2020[79] suggests that although there were some discussion groups already in place (primarily in dairy but also in beef and sheep), an important aspect of M1.1 is to increase participation levels with development of a model that ensures a more strategic, integrated and output focussed approach. In this way, the support for KT groups represents the continuation of existing discussion groups but with a broader contribution and focus area. KT addresses the following focus areas and common evaluation questions:

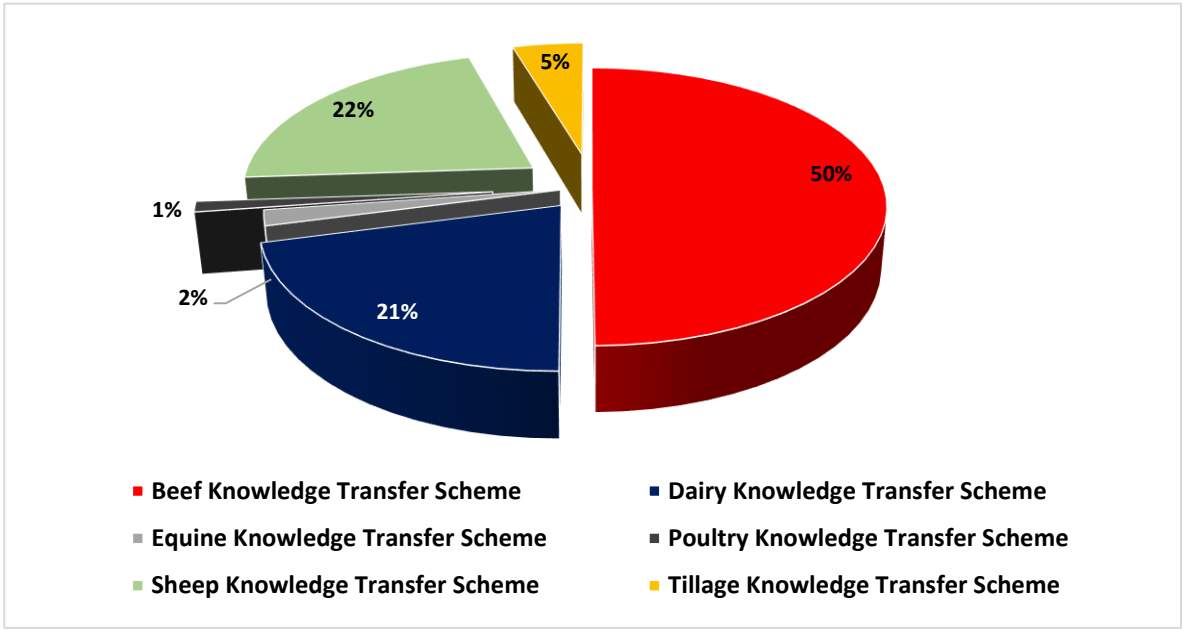
- FA1A: To what extent have RDP interventions supported innovation, cooperation and the development of the knowledge base in rural areas?
- FA1C: To what extent have RDP interventions supported lifelong learning and vocational training in the agriculture and forestry sectors?

[79] Ireland- Rural Development Programme (National). Released on 28th May 2015. Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/OriginalVersionAdoptedMay2015100217.pdf

- FA2A: Improving the economic performance of all farms and facilitating farm restructuring and modernisation
- FA3B: Supporting farm risk management and prevention
- FA4A/4B/4C (P4): Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry
- FA5D: To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

With respect to the farming sectors covered by the M1.1, the DAFM data shown in Figure 7.4 suggests that there were the highest participation levels in the Beef KT scheme (50%), followed by Sheep and Dairy.

**Figure 7.4: Proportion of Farmers in KT Groups**




*Source: DAFM Data on KT Groups*

**Input and Activities of KT Groups**

There are three inputs allocated to both submeasures. The first two relate to financing and the third is administrative support required for its implementation. The KT programme is jointly funded by the National Exchequer and the European Agricultural Fund for Rural Development (EAFRD). The programme has been operational from 1st June 2016 for over three years until 31st July 2019 and is administered by the Innovation Unit of DAFM. Table 7.3 shows the total public spending made up to the end of 2018 and the associated target funding. The public spending so far represents 35.6% of the total target allocation of €99.7 million, equally distributed across focus areas 2A, 3B, P4 and 5D. These are focussed on the economic performance of farms, risk management and prevention, restoration and preservation of ecosystem, and reduction of GHG and ammonia emission from agriculture.

| Table 7.3: RDP Funding Input for KT Groups | | | | |
|---|---|---|---|---|
| **Support** | **2017** | **2018** | **2017-2018** | **Planned Output** |
| Total Public Expenditure - Overall (€ Millions) | 13.78 | 21.67 | 35.45 | **99.7** |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | |

The application to a KT group is made through a DAFM approved KT facilitator and the group comprises 12-18 participants. The facilitators prepare for the meetings, ensure that participants meet their commitment of attending five KT meetings per year, oversee the preparation and submission of Farm Improvement Plans for each participating farmer, and issue payments to the participants. The facilitators use the KT-online system to manage all the meetings once the KT group is approved.

### Output of KT Groups

The RDP amendments allows participation in a second KT group, with a reduced payment linked to it. The order of the meeting is determined by the chronology of registration with annual payment of €750 for primary group and €350 for the secondary group, subject to penalties. The payment for facilitators is €500 and €250 for primary and secondary groups respectively. As shown in Table 7.4, a total of 76,870 training days (8 hours per day) was delivered for KT groups over 2017/2018. In 2018 there were over 18,669 active participants, of which 17,063 were paid participants. With a target of 26,600 participants overall, the KT groups have not reached this target by the end of 2018.

| Table 7.4: RDP Output for KT Groups (FA2A/3B/P4/5D) | | | |
|---|---|---|---|
| **Indicators** | **2017** | **2018** | **Planned Output 2023** |
| No. of actions/operations supported | 6 | 6 | |
| No. of training days given (day = 8hrs) | 36,080 | 40,790 | |
| No. of training participants (paid) | 13,958 | 17,063 | 26,600 |
| No. of training participants (active) | 19,019 | 18,669 | |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | |

### Impact of Measure 1

The impact of training delivered under Measure 1 is estimated on a range of outcomes as specified in the programme logic model. As part of the impact assessment Indecon considered the feasibility of using regression analysis. Isolating the impact of the training from the outcomes observed from programme participants is difficult. However, we have attempted some econometric counterfactual analysis. As part of survey research, we have also attempted to isolate the impact of the training/knowledge transfer on farming methods.

The NFS data provides information for this payment for 2017, as shown in Table 7.5. The KT group measure only started in 2017 and we only have one full year of data so far. Around 13% of farms benefitted directly from a Knowledge Transfer payment in 2017.

**Table 7.5: Knowledge Transfer (KT) Summary Statistics (2017)**

| Year | Total Beneficiaries | Total Farms (N) | Beneficiary (%) | Total Payments Awarded (€) | Mean Amount of Payment (€) |
|---|---|---|---|---|---|
| 2017 | 112 | 861 | 13.01%* | 97,943 | 874.49 |

***Source: Indecon Analysis of NFS data***
****: The DAFM indicator data suggests a corresponding national estimate of 13.83%.***

The difference of means t-test results are shown in Table 7.6. The Farmers receiving a KT payment on average have higher family income and are younger. Apart from these two differences, farmers in receipt of a KT payment do not appear to differ significantly from farmers who do not receive a KT payment on factors such as farm output, farm size, capital investment, farm depreciation and value of fertilisers used.

**Table 7.6: Difference of Means Tests for KT payment Recipients vs. Non- Recipients**

| Variables | Control (KT=0) N=1,607 | Treatment (KT=1) N=112 | Difference (C-T) | P-Value |
|---|---|---|---|---|
| Total Land Farmed (ha.) | 64.63 | 63.20 | 1.43 | 0.81 |
| Farmer Age | 55.01 | 51.62 | 3.39* | 0.01 |
| Farm Family Income (€) | 44,088.65 | 54,996.31 | -10,907.66* | 0.02 |
| Farm Gross Output (€) | 129,528.28 | 143,466.54 | -13,938.26 | 0.28 |
| Gross Output: Crops (€) | 7,999.07 | 7,697.81 | 301.27 | 0.94 |
| Gross Output: Livestock (€) | 100,912.12 | 114,358.73 | -13,446.61 | 0.26 |
| Total Labour Units | 1.36 | 1.39 | -0.03 | 0.67 |
| Total Livestock Units | 88.09 | 93.28 | -5.18 | 0.47 |
| Total Farm Costs (€) | 85,478.65 | 88,563.24 | -3,084.59 | 0.73 |
| Depreciation: Machinery | 5,298.19 | 6,132.80 | -834.61 | 0.20 |
| Depreciation: Buildings | 3,760.79 | 3,920.51 | -159.72 | 0.73 |
| Depreciation: Land Imp. | 616.97 | 692.47 | -75.49 | 0.43 |
| Investment: Machinery | 45,903.29 | 54,467.49 | -8,564.20 | 0.13 |
| Investment: Buildings | 61,041.78 | 62,446.68 | -1,404.90 | 0.85 |
| Investment: Livestock. | 96,020.89 | 102,987.17 | -6,966.28 | 0.41 |
| Value of Fertilisers (€) | 8,683.73 | 8,667.65 | 16.08 | 0.99 |

***Source: Indecon Analysis of NFS Data***

The FE regression model is shown in Table 7.7. The results do not suggest a significant relationship between the KT payment and log of output, an expected result given that the operation of the KT scheme is only recorded for 2017. However, the relationship between KT payment and log of farm productivity appears to be positive. Further research is required at ex-post stage to test the validity of this. In addition, further qualitative research to evaluate the content of the KT is required.

Critically, Indecon notes that the counterfactual analysis has not been conducted for the KT payment as the KT payment data is only available for 2017, the latest period recorded in the NFS data. Since the operational period of this scheme is available for only one year, there is insufficient data to conduct counterfactual analysis.

**Table 7.7: KT Payments Fixed Effects Results for Output and Productivity**

| Variables | (1) Log Output KT FE Model | (2) Log Productivity KT FE Model |
|---|---|---|
| KT payment | **0.0278** | **0.0457**** |
| | **(0.0195)** | **(0.0232)** |
| Log of Labour Units | 0.0767 | |
| | (0.0576) | |
| Log of Farm Size | 0.756** | 0.954** |
| | (0.326) | (0.389) |
| Log of Farm Size Sq. | -0.0731 | -0.115** |
| | (0.0448) | (0.0535) |
| Farmer Age | 0.111*** | 0.104*** |
| | (0.00798) | (0.00952) |
| Farmer Age Sq. | -0.00608 | -0.00648 |
| | (0.00447) | (0.00535) |
| Log of Capital Depreciation | 2.47e-05 | 3.42e-05 |
| | (4.83e-05) | (5.77e-05) |
| Log of Fuel | 0.109** | 0.0694 |
| | (0.0424) | (0.0505) |
| Constant | 8.865*** | 8.926*** |
| | (0.703) | (0.840) |
| Observations | 1,337 | 1,337 |
| R-squared | 0.368 | 0.251 |
| Number of Farm Ids | 724 | 724 |
| Soil Group FE | Yes | Yes |
| Farm System | Yes | Yes |
| Time Trend | Yes | Yes |

***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

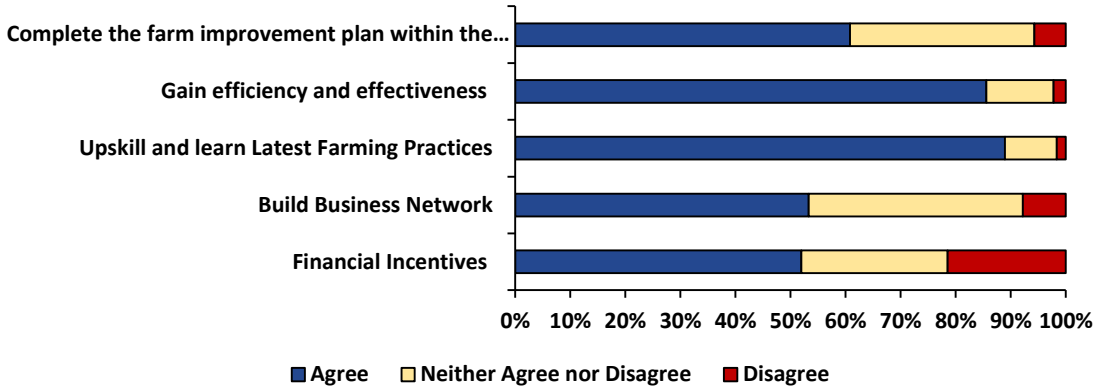
The FE results for CAP indicators are presented in Table 7.8. KT payment appears to have some positive impacts on Agricultural Entrepreneurial Income (AEI) and Agricultural Factor Income (AFI). However, KT payment has no statistically significant impact on the measure of Total Factor Productivity (TFP). Although positive, the results for farm productivity and AFI and AEI should be interpreted with caution keeping in mind the caveat regarding few observations available and that data is available only for one year. More detailed modelling is required in any ex-post review to derive definitive conclusions on KT measures. With only year of data, these estimates can only be interpreted as correlations and not causal impacts.

| Table 7.8: KT Payment Fixed Effects Results for CAP Indicators | | | |
|---|---|---|---|
| Variables | (1) Ag. Entre. Income KT FE Model | (2) Ag. Fact. Income KT FE Model | (3) TFP KT FE Model |
| **KT** payment | **0.0546*** | **0.0543*** | **-0.00352** |
| | **(0.0298)** | **(0.0287)** | **(0.0588)** |
| Log of Labour Units | -0.902*** | -0.855*** | -0.318** |
| | (0.0887) | (0.0853) | (0.142) |
| Log of Farm Size | 1.469*** | 1.728*** | 0.296 |
| | (0.503) | (0.483) | (1.643) |
| Log of Farm Size Sq. | -0.140** | -0.169** | 0.00431 |
| | (0.0697) | (0.0671) | (0.206) |
| Year (Time Trend) | 0.170*** | 0.165*** | -0.0625** |
| | (0.0123) | (0.0118) | (0.0272) |
| Farmer Age | -0.00756 | -0.00757 | -0.00740 |
| | (0.00685) | (0.00659) | (0.00908) |
| Farmer Age Sq. | 2.05e-05 | 1.57e-05 | 4.62e-06 |
| | (7.39e-05) | (7.11e-05) | (0.000118) |
| Log of Capital Depreciation | -0.113* | -0.0508 | 0.0663 |
| | (0.0650) | (0.0624) | (0.147) |
| Log of Fuel | 0.0142 | 0.0121 | 0.0465 |
| | (0.0194) | (0.0187) | (0.0402) |
| Constant | 8.961*** | 7.836*** | -1.927 |
| | (1.078) | (1.036) | (3.554) |
| Observations | 1,333 | 1,336 | 500 |
| R-squared | 0.388 | 0.397 | 0.126 |
| Number of Farm Ids | 722 | 724 | 308 |
| Soil Group FE | Yes | Yes | Yes |
| Farm System | Yes | Yes | Yes |
| Time Trend | Yes | Yes | Yes |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1*** | | | |
| ***Indecon Analysis on NFS Data.*** | | | |

Due to the data limitations described above, Indecon undertook a survey of KT recipients. This survey allowed Indecon to examine the reasons for participation in Knowledge Transfer groups and whether the participants would have taken part in similar groups without the support. It also enabled Indecon to consider the impacts of the KT groups on a number of the common evaluation questions and gathered qualitative evidence on the views of beneficiaries on the overall impact of the RDP.

The survey respondents believed that learning the latest farming practices and gaining efficiency were the most important factors for participation in the KT scheme, as shown in the figure below. Moreover, over 50% of respondents cited farm improvement plans and building up of basic business networks as relevant drivers for participation in KT.

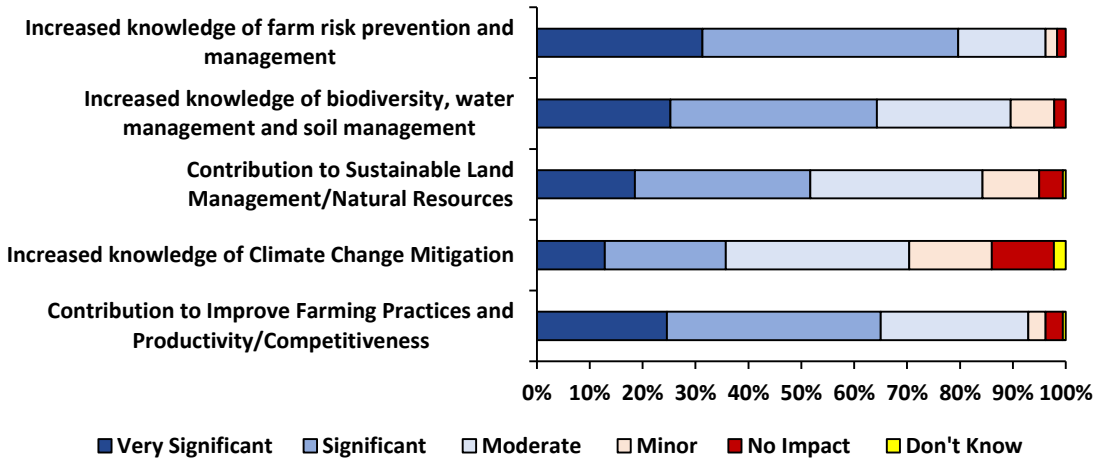
**Figure 7.5: Main Factors for Participating in the Knowledge Transfer Scheme**




*Source: Indecon survey*

In terms of the contribution of participation in the KT payment, the survey suggests over 80% of respondents believe the support had a significant to moderate impact on increasing the knowledge of farm risk prevention and management (see Figure 7.6). In addition to this, around 60% of respondents suggest that the KT scheme increased their understanding of issues pertaining to biodiversity, water management and soil management and also aided in increasing the productivity and competitiveness arising from improved farm practices. However, around 27% of respondents believed that the scheme had minor to no impact in terms of contribution to knowledge of climate change mitigation and sustainable land management.

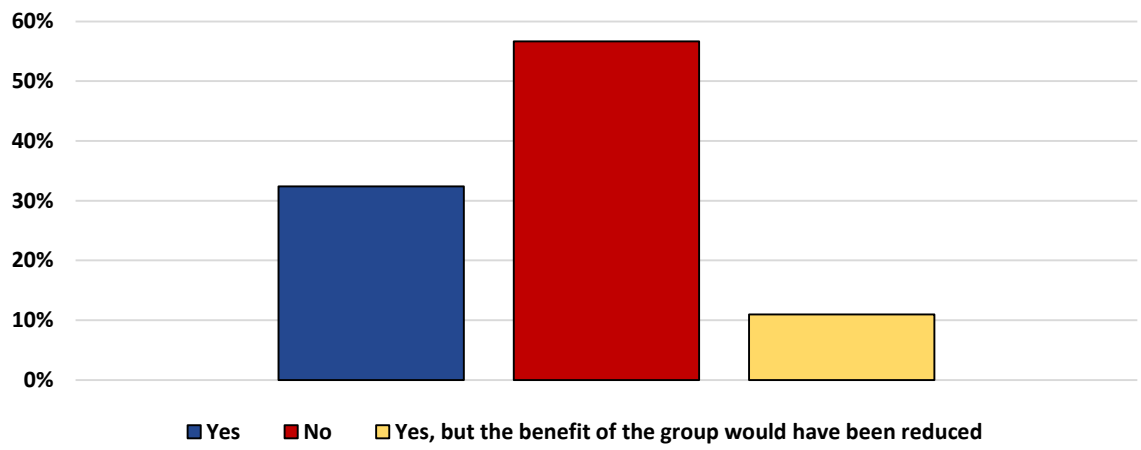
**Figure 7.6: Views of Beneficiaries on contribution of Knowledge Transfer Groups**




*Source: Indecon survey*

The contribution of the KT payment appears to have led to the creation of farm groups that would not have occurred without the payment. Survey evidence indicates that around 57% of respondents indicated they would not have participated in a KT group without the payment. However, over 40% of farmer beneficiaries indicated that they would have participated in a similar group without the payment suggesting some levels of deadweight. It is likely that there were significant differences by farm system in terms of levels of deadweight. It should be noted that facilitators would be unlikely to set up the KT group without payment also.

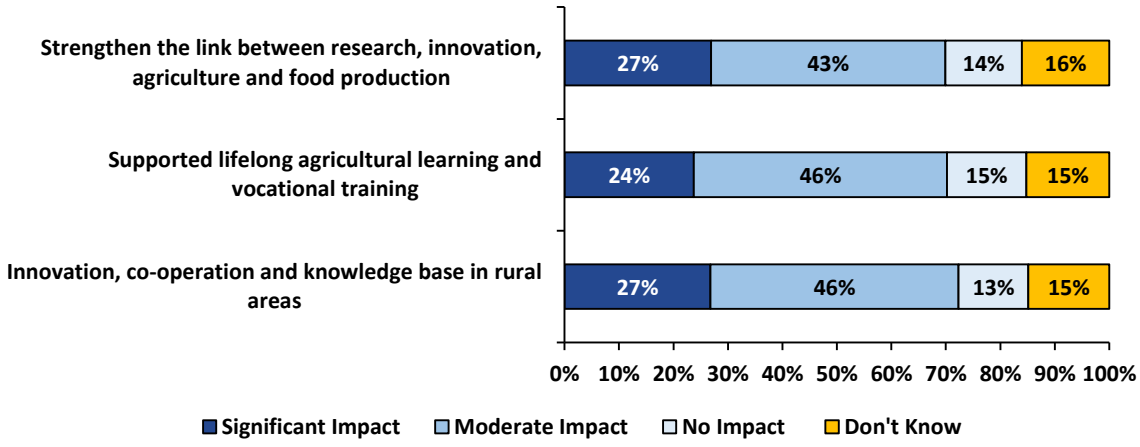
**Figure 7.7: Exchange of farming views if KT was unavailable**




*Source: Indecon survey*

The RDP makes a number of contributions to Focus Areas 1A and 1C. These are mainly through activities in Measure 1. The wider impact of the RDP on the key Knowledge Transfer and Innovation outcomes is shown in Figure 7.8. Over 70% of RDP farmers surveyed believed that the RDP had significant to moderate impact on strengthening of the link between research innovation and agriculture innovation, supporting lifelong agricultural learning and vocational training and innovation, co-operation and knowledge base expansion in rural areas.

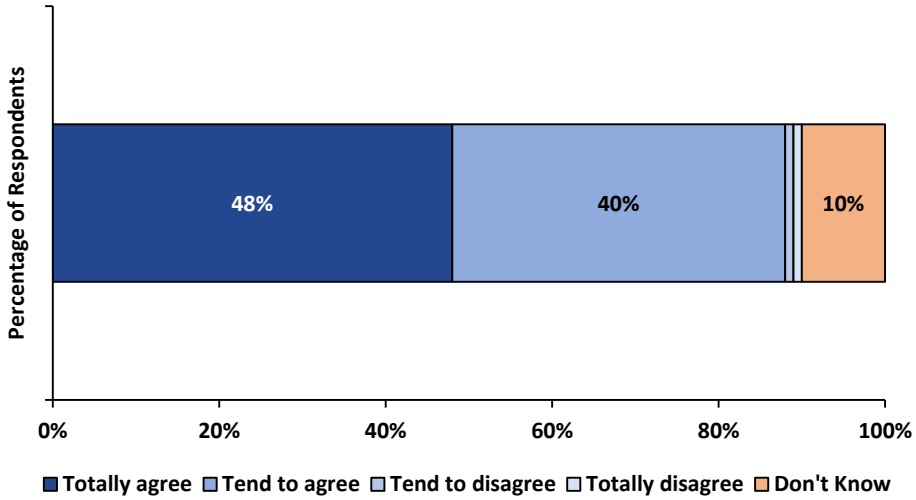
**Figure 7.8: Impact of RDP supports on Knowledge Transfer, Innovation and training**




*Source: Indecon survey*

The public also believes that the various measures under the RDP are likely having a positive impact on fostering innovation. Around 88% of the public agreed that the RDP assisted in fostering innovation.

**Figure 7.9: Views of Persons Surveyed by Eurobarometer on the Impact of RDP on Fostering Innovation**




*Source: Eurobarometer 467*

## 7.3 Measure 2: Advisory services, farm management and relief

Measure 2 addresses costs related to animal health and diseases through investment that targets a number of areas under submeasures including;

- Submeasure 2.3: Animal Health and Welfare-Training for Advisors
- Submeasure 2.1: Animal Health and Welfare- On farm Advice

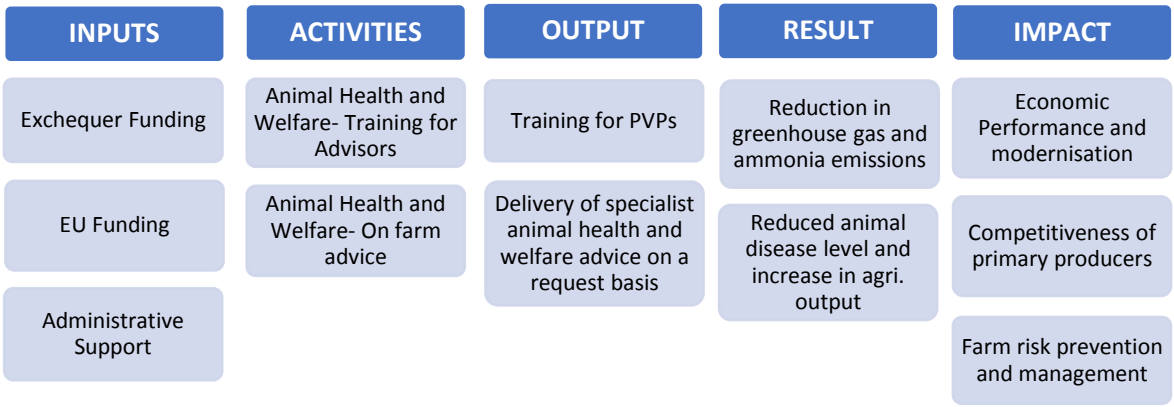
Measure 2 also complements the animal health component within KT groups under Measure 1 and offer farm-specific advice, provided to individual farmer on request. It is expected that the strategic targeting of animal diseases, improvement in animal health, and welfare will assist in achieving production efficiency. The measure links research and development of disease control programme by Animal Health Ireland Technical Working groups with actual farm practice through training and approval of specialist advisors and delivery of farm training by those advisors. The use of trained and approved advisors and Private Veterinary Practitioners (PVPs) offer the potential to strategically target a number of animal diseases such as Johne's disease, Bovine Viral Diarrhoea (BVD), Somatic Cell Count (SCC) and other relevant health issues in the pig sector. According to Ireland's RDP 2014-2020 programme report,[80] the savings arising from the eradication of BVD are estimated at €102

[80] Ireland's Rural Development Programme 2014-2020. Draft of July 2014. Retrieved from: https://www.agriculture.gov.ie/media/migration/agarchive/ruralenvironment/preparatoryworkfortherdp2014-2020/RDPFinaldraft03072014.pdf

million per annum, from SCC estimated at €80 million per annum. For Johne's disease, a control programme mitigates risk to high value export markets such as infant formula which had an estimated value of €670 million in 2012, expecting to grow to in excess of a billion euros by 2020.

Figure 7.10 sets out the Programme Logic Model (PLM) for Measure 2 and highlights the inputs, activities, outputs, results and the overall impact on key agricultural outcomes.

**Figure 7.10: Programme Logic Model - Measure 2**




***Source: Indecon***

The elements of PLM are the same for all the submeasures and we discuss inputs, activities and output with context to each submeasure; whereas, the reporting of results and estimation of aggregate impacts is done at the Measure level. Furthermore, given the complementarity between the submeasures, there is only a single programme logic model for Measure 2.

**Submeasures 2.3 and 2.1: Animal Health and Welfare (AHW) - Training for Advisors and On-farm Advice**

The delivery of advisory service within Submeasure 2.3 has been awarded to Animal Health Ireland in September 2015 following an open call for proposals. The submeasure aims to organise specialist training of PVPs to deliver on-farm animal health and welfare advisory services. These services will strategically address animal diseases such as Johne's disease, BVD and SCC.

Submeasure 2.1 relates to the delivery of specialist animal health and welfare advice by qualified veterinary surgeons on individual farm-level request. The beneficiaries of M2.1 should be qualified PVPs and have undergone specialist training delivered under Submeasure 2.3 and to also hold a relevant National Framework of Qualifications Level 8 qualifications. In addition to the complementarity with Measure 1 and Focus Area 1, Submeasures 2.3 and 2.1 also address Focus Area 3A under Priority 3 of RDP which is aimed at promoting food chain organisation and managing risk in agriculture.

The targeted advisory under AHW aims to increase the awareness of PVPs and enhancement of risk management of farm animals. These objectives are met from the support provided by National

Exchequer and the funding from the EAFRD. So far, a total of €1.01 million has been spent on this programme, achieving approximately 12.2% of its target funding.

| Table 7.9: RDP input for AHWAS and On-Farm Advisory (M2.3 and 2.1) | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2021** |
| Total Public Expenditure (€ Millions) | 0.30 | 0.45 | 0.26 | 1.01 | 8.3 |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | | |

The eligible trainers under this submeasure will be qualified veterinary surgeons who are registered with the Irish Veterinary Council with a National Framework Qualification Level 9 qualification.[81] The service provider obtains support from the programme on the basis of the price set out in the tender document and is subject to a maximum of €200,000 per three years per service provider. The payment is calculated on the basis of the number of disease training sessions required. Table 7.10 shows that a total of 1,363 advisors were trained by the end of 2018. A total of 794 beneficiaries were supported in 2018, in addition to 1,323 supported from 2014-2017 bringing the total to 3,205 at the end of 2018.

| Table 7.10: RDP output from AHWAS and On-Farm Advisory (M2.3 and M2.1) | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| No. of farmers advised (M2.1) | 1,088 | 1,323 | 794 | 3,205 | NA |
| Total advisors trained (M2.3) | 886 | 100 | 377 | 1,363 | NA |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | | |

The result of Measure 2 is captured by indicator on percentage expenditure on M2, as specified in Table 7.11. Overall, it is clear that the expenditure on Measure 2 is a very small proportion of the overall RDP expenditure.

| Table 7.11: RDP Output Indicators for M2 | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| % of expenditure under Measures 2 as share of RDP expenditure | 0.06% | 0.04% | 0.05% | N/A |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | |

**Impact of Measure 2**

[81] Summary of Rural Development Programme Ireland 2014-2020 (September, 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

The statistics on BVD National Eradication Programme are shown in Table 7.12. As it can be seen, the proportion of calves tested positive with BVD has declined from 2013 to 2017, falling from 0.77% in 2013 to 0.07% in 2018. This equates to a 91% decrease in the number of positive cases between 2013 and 2018. In addition to its intrinsic value, animal health is an important aspect of agriculture both in terms of reputation and productivity.

**Table 7.12: BVD Test Results**

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|
| **Calves Tested (million)** | 2.09 | 2.13 | 2.26 | 2.32 | 2.35 | 2.34 |
| **% Negative** | 98.03% | 98.54% | 98.85% | 99.20% | 98.85% | 98.58% |
| **% (Number) Positive*** | 0.77% (16,194) | 0.50% (10,758) | 0.36% (8,247) | 0.20% (4,539) | 0.12% (2,842) | 0.07% (1,530) |
| **% (Number) Inconclusive*** | 0.03% (661) | 0.01% (119) | 0.01% (206) | 0.00% (59) | 0.00% (117) | 0.00% (47) |

***Source: Animal Health Ireland BVD National Eradication Programme***
****: Based on initial tag test result, prior to any confirmatory testing***

Much of the investment in this measure occurred in the early years of the 2014-2020 RDP. A survey of trained PVPs who participated in the BVD training was undertaken in 2017. This survey evidence suggested an increase in the knowledge base of PVPs in relation to Bovine Viral Diarrhoea (BVD) and Johne's Disease (JD).

An important aspect of the Measure 2.3 (Training for advisors) is the setting up of the infrastructure to deal with animal health issues through the RDP. The BVD eradication programme has been very successful at this stage. The operational model that was established can also be applied to targeting other animal disease issues. It is also likely that there will be more diseases added in the next programming period. However, it is not possible to estimate the actual net impact of the RDP intervention in this case or whether improvements in BVD would have occurred without RDP support. However, the measure may have accelerated the pace of eradication. Overall, the budget associated with Measure 2 is very small in the context of the overall RDP and it is difficult to isolate the impacts of this measures on the associated focus areas.

## 7.4 Measure 4, Submeasure 4.1: Investment in Physical Assets- The Targeted Agricultural Modernisation Schemes (TAMS II)

TAMS II encourages capital investment in a number of target areas with the objective of promoting increased competitiveness and sustainability. The need for capital investment was identified in the SWOT analysis and public consultation with a number of central themes in farming which include:

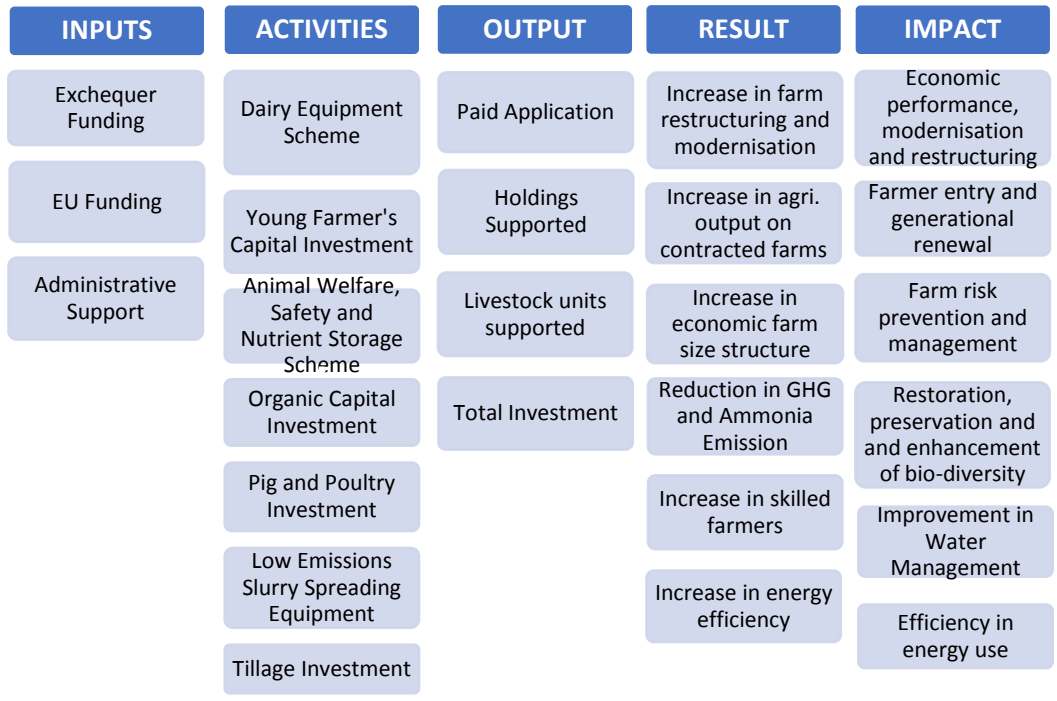
- Enabling growth and competitiveness;
- Environment and climate change issues;
- Supporting increased efficiency of holdings; and
- Improved animal health and welfare.

There are a number of relevant focus areas/common evaluation questions addressed under M4.1 which cover both the competitiveness and agri-environment climate objectives. These include:

- FA2A: Improving the economic performance of all farms and facilitating farm restructuring and modernisation;
- FA2B: Facilitating the entry of adequately skilled farmers into the agricultural sector;
- FA3B: Supporting farm risk management and prevention;
- FA4A: Restoring, preserving and enhancing biodiversity, including Natura 2000 areas;
- FA5B: Increasing efficiency in energy use in agriculture and food processing; and
- FA5D: To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture?

The activities and prioritised areas under TAMS II are discussed in the following sections, where the allocated funds and investment are detailed as per the aforementioned focus areas. The level of support under TAMS II in the 2014-2020 RDP is significantly larger than similar support in the 2007-2013 RDP. As discussed previously, TAMS[82]represents the largest measure (in budgetary terms) under the broad competitiveness areas of Priorities 1-3. The PLM for TAMS II is shown in Figure 7.11. There are seven primary activities undertaken in Measure 4.1 which lead to programme investment for the purchase/lease of existing/new farm equipment, machinery and farm infrastructure.

**Figure 7.11: Programme Logic Model - Measure 4.1**




***Source: Indecon***

[82] It should also be noted that there is significant expenditure in the 2014-2020 RDD related to TAMS I which is considered in the context of the overall budget for TAMS. This transitional expenditure relating to investments approved in the under the previous RDP was most pronounced in the 2014-2016 period.

**Inputs and activities of TAMS II**

TAMS II is a capital investment scheme with a general 40% rate applied that can go up to 60% in the case of young farmers. Moreover, a ceiling of €80,000 per holding is placed for TAMS scheme during the lifetime of RDP with an exception made for Low Emission Slurry Spreading (LESS). If the holding is part of a registered farm partnership, then the partnership will be entitled to claim up to a maximum of €160,000 in eligible investments

The inputs and activities under TAMS II are categorised as per the focus areas/common evaluation questions, where the main activities include:

- Dairy Equipment Scheme (DES): Funding for purchase or lease purchase of new machinery and support for investment in range of items including robotic milking machines, bulk milk tanks, milking equipment, storage and cooling equipment.
- Low Emission Slurry Spreading (LESS): Support for purchase or lease purchase of equipment and machinery including mobile slurry tanks and umbilical systems with attached low emission spreading equipment.
- Animal Welfare, Safety and Nutrient Storage Scheme (AWNSS): Investment for immovable property or machinery for range of items including sheep fencing and safety elements such as replacement slats and safety rails, solid covers for slurry stores, handling facilities, calving and isolation facilities, aeration systems, farm nutrient storage facilities etc.
- Pig and Poultry Investments Scheme (PPIS): Investment for new and existing infrastructure for items such as medicated feed/water dispensers, solar panels, heat recovery units, heat pumps, biomass boilers, ventilation and insulation, etc.
- Young Farmer Capital Investment Scheme (YFCIS): Incentives provided to young farmers for upgrading the agricultural infrastructure.
- Tillage Capital Investment Scheme (TCIS): Support for capital investment for rainwater harvesting and storage, grain storage, etc.
- Organic Capital Investment (OCIS): Financial support animal housing animal housing and nutrient storage facilities, grain, hay, straw and farm product stores, safety elements on existing farm structures, animal handling equipment, dairy milking and storage equipment, horticulture structures, polytunnels, specialised organic machinery and equipment.

TAMS II only started midway through 2015 and no public funding was actually paid out in 2015. Thus, the observation of impacts is only possible for 2016-2018.

The participants in the Dairy Equipment Scheme (DES) were highest amongst all TAMS II schemes[83], followed by Animal Welfare, Safety and Nutrient Storage Scheme (AWS), and Young Farmer Capital Investment scheme (YFCI). Across different regions, the participation for AWS was highest in the West and South-West regions, while for DES the participation was highest from South-West and Mid-West region. The participation in YFCI and remaining schemes was also primarily from South-West, Mid-West and South-East regions.

[83] It must be noted that milk quotas were removed in 2015. This may have led to an increase in capital investment in the Dairy sector.

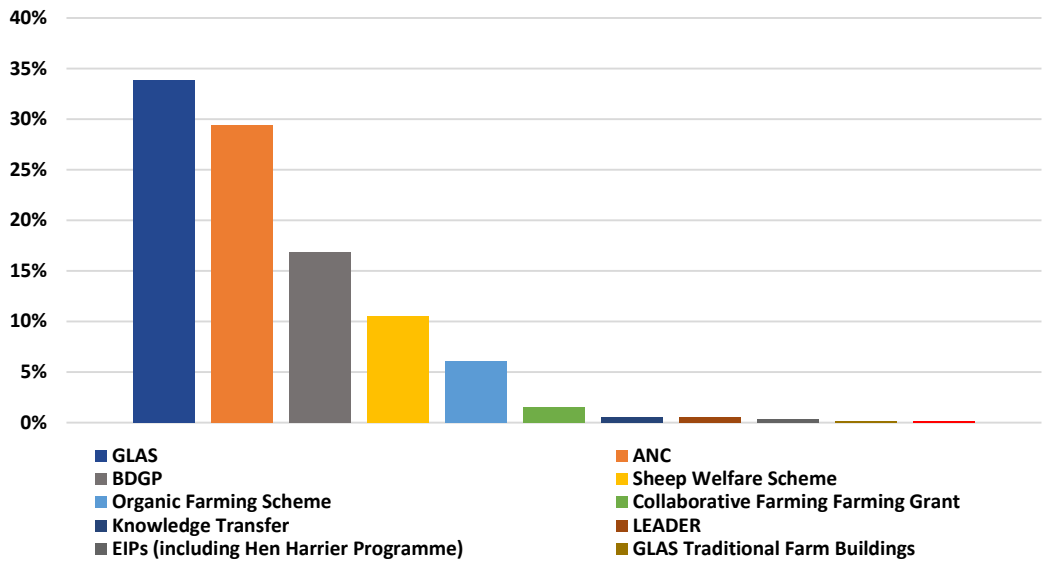
| Table 7.13: Participation in Different TAMS II Schemes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **TAMS II** | **Border** | **West** | **Mid-West** | **South-East** | **South-West** | **Dublin** | **Mid-East** | **Midlands** | **Total** |
| AWS | 15.3% | 19.4% | 17.5% | 12.8% | 18.6% | 0.3% | 5.8% | 10.2% | 1817 |
| DES | 5.7% | 6.1% | 24.3% | 17.5% | 30.6% | 0.4% | 8.0% | 7.1% | 1922 |
| LESS | 11.7% | 16.9% | 14.1% | 16.1% | 24.8% | 0.2% | 5.4% | 10.7% | 609 |
| OCIS | 19.0% | 23.5% | 17.9% | 5.4% | 13.7% | 0.9% | 5.1% | 14.6% | 336 |
| PPIS | 60.0% | 0.0% | 8.0% | 14.0% | 14.0% | 0.0% | 2.0% | 2.0% | 50 |
| TCIS | 3.5% | 1.1% | 9.4% | 29.4% | 16.0% | 4.6% | 26.2% | 9.7% | 626 |
| YFCI | 11.4% | 13.1% | 18.0% | 18.8% | 20.4% | 0.4% | 7.6% | 10.2% | 1762 |
| ***Total*** | ***10.9%*** | ***12.5%*** | ***18.4%*** | ***17.0%*** | ***22.3%*** | ***0.7%*** | ***8.5%*** | ***9.5%*** | ***7122*** |
| ***Source: DAFM Data*** | | | | | | | | | |

The cross-over between TAMS II recipients and KT groups is shown in Table 7.14. This suggests that farmers receiving Organic Capital Investment (OCIS) had highest participation in KT groups, particularly the Beef KT scheme. As expected, the participation in KT groups which corresponds one-to-one with TAMS II schemes such as Dairy KT, Poultry KT, Tillage KT, was relatively high as compared to participation in other KT groups. This is evidence of good complementarity between the two RDP measures.

| Table 7.14: Overlap between TAMS II and Participation in Knowledge Transfer Groups | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TAMS II** | **Beef Knowledge Transfer Scheme** | **Dairy Knowledge Transfer Scheme** | **Equine Knowledge Transfer Scheme** | **Poultry Knowledge Transfer Scheme** | **Sheep Knowledge Transfer Scheme** | **Tillage Knowledge Transfer Scheme** | **Total** |
| AWS | 17.7% | 12.8% | 0.2% | 0.3% | 7.4% | 0.8% | 39.1% |
| DES | 1.4% | 29.2% | 0.1% | 0.0% | 0.1% | 0.4% | 31.1% |
| LESS | 11.5% | 11.7% | 0.0% | 0.2% | 1.3% | 1.5% | 26.1% |
| OCIS | 39.6% | 0.9% | 0.0% | 0.6% | 5.1% | 1.5% | 47.6% |
| PPIS | 4.0% | 2.0% | 0.0% | 32.0% | 0.0% | 0.0% | 38.0% |
| TCIS | 4.2% | 1.1% | 0.0% | 0.5% | 1.1% | 31.0% | 37.9% |
| YFCI | 10.7% | 8.2% | 0.0% | 0.2% | 3.7% | 2.6% | 25.3% |
| ***Source: DAFM Data on TAMS II and Knowledge Transfer Groups*** | | | | | | | |

With regards to other RDP grants received by the TAMS II farmers, Figure 7.12 suggests that around 35% of respondents reported having funding under GLAS, followed with ANC and BDGP.

**Figure 7.12: Other RDP Payments received by TAMS II farmers**




*Source: Indecon survey*

Table 7.15 shows the total public expenditure made for different focus areas corresponding to the aforesaid activities. FA2A and FA2B form the core of the public expenditure made under TAMS II, whereas TAMS I transitional expenses were mostly made for FA4A and FA2A. By the end of 2018, the total expenditure under TAMS II and I totalled over €129 million,[84] i.e., around 30.4% of the total target funding of €425 million[85] in RDP 2014-2020.

**Table 7.15: RDP Input for TAMS (II and I)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| ***Animal Housing/ Dairy Equipment/ Organic Capital Equipment (including rainwater harvesting)/Tillage Capital Investment Scheme (FA2A)*** | | | | | |
| Total Public Expenditure -TAMS II (€ Millions) | 1.91 | 12.66 | 20.97 | 35.54 | 155.30 |
| Total Public Expenditure -TAMS I (€ Millions) | 7.20 | 0.01 | 0.03 | 7.23 | |
| ***Young Farmer's Capital Investment (FA2B)*** | | | | | |
| Total Public Expenditure -TAMS II (€ Millions) | 1.50 | 14.08 | 31.42 | 47.01 | 114.00 |
| ***Animal Welfare, Safety and Nutrient Storage Scheme (FA3B)*** | | | | | |
| Total Public Expenditure -TAMS II (€ Millions) | 0.03 | 0.44 | 1.44 | 1.91 | 25.00 |
| Total Public Expenditure -TAMS I (€ Millions) | 4.25 | 0.03 | 0.00 | 4.29 | |
| ***Animal Welfare, Safety and Nutrient Storage Scheme (FA4A)/Tillage Capital Investments Scheme (FA4B)*** | | | | | |
| Total Public Expenditure -TAMS II (€ Millions) | 0.00 | 1.27 | 6.70 | 7.97 | 100.70 |
| Total Public Expenditure - TAMS I +AEOS Non-Productive Investments (€ Millions) | 14.06 | 0.96 | 0.78 | 15.81 | |
| ***Pigs and Poultry Investment/ Tillage Capital Investment Scheme (FA5B)*** | | | | | |

[84] This also includes €15.81 million for NPI under transitional AEOS.

[85] The TAMS allocation is €395 million and the AEOS transitional allocation is €30 million.

| | | | | | |
|---|---|---|---|---|---|
| Total Public Expenditure -TAMS II (€ Millions) | 0.01 | 0.44 | 2.17 | 2.62 | 20.00 |
| ***Low emission Slurry Spreading (FA5D)*** | | | | | |
| Total Public Expenditure -TAMS II (€ Millions) | 0.49 | 2.37 | 3.91 | 6.78 | 10.00 |
| ***Total TAMS II (€ Millions)*** | 3.96 | 31.25 | 66.61 | 101.83 | 381.70 |
| ***Total TAMS I +AEOS NPI(€ Millions)*** | 25.51 | 1.00 | 0.81 | 27.33 | 43.30 |
| ***Total TAMS II+I +AEOS NPI(€ Millions)*** | 29.48 | 32.26 | 67.43 | 129.16 | 425 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | | |

Overall, it is likely that the levels of investment under TAMS will increase with drawdown on approved projects. For this reason, it is also important to examine the number of holdings supported in each year. The figures presented above represent only the public funding amounts associated with TAMS II which understate the actual level of the total investment as the farmer beneficiary is typically required to put forward 60% of the capital cost.

**Output of TAMS I and II**

The investments made under different focus-areas of RDP priorities are shown in the table below. TAMS II supported farmers to carry out investments of just under €205 million from 2014-2018; with the highest level of investment made under FA2A in support of animal housing, dairy equipment, organic capital equipment (including rainwater harvesting) totalling over €82 million, followed by investments worth €78 million under the Young Farmer's Capital Investment Scheme.

**Table 7.16: RDP Investment (includes public and private funding) for TAMS (II and I)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| ***Animal Housing/ Dairy Equipment/ Organic Capital Equipment (including rainwater harvesting)/Tillage Capital Investment Scheme (FA2A)*** | | | | | |
| Total Investment - TAMS II (€ Millions) | 4.99 | 30.03 | 47.26 | 82.28 | |
| Total Investment - TAMS I (€ Millions) | 17.99 | 0.03 | 0.07 | 18.09 | |
| ***Young Farmer's Capital Investment (FA2B)*** | | | | | |
| Total Investment - TAMS II (€ Millions) | 2.65 | 23.83 | 51.40 | 77.88 | |
| ***Animal Welfare, Safety and Nutrient Storage Scheme (FA3B)*** | | | | | |
| Total Investment - TAMS II (€ Millions) | 0.08 | 1.07 | 2.99 | 4.14 | |
| Total Investment - TAMS I (€ Millions) | 10.64 | 0.07 | 0.01 | 10.72 | |
| ***Animal Welfare, Safety and Nutrient Storage Scheme (FA4A)/ Tillage Capital Investments Scheme (FA4B)*** | | | | | |
| Total Investment - TAMS II (€ Millions) | 0.01 | 2.75 | 15.26 | 18.03 | |
| Total Investment - TAMS I +AEOS Non-Productive Investment (€ Millions) | 14.06 | 0.96 | 0.78 | 15.81 | |
| ***Pigs and Poultry Investment/ Tillage Capital Investment Scheme (FA5B)*** | | | | | |
| Total Investment - TAMS II (€ Millions) | 0.03 | 1.11 | 5.06 | 6.20 | |
| ***Low emission Slurry Spreading (FA5D)*** | | | | | |
| Total Investment (TAMS II) | 1.26 | 5.77 | 9.38 | 16.41 | |
| ***Total Investment TAMS II (€ Millions)*** | 9.02 | 64.56 | 131.36 | 204.94 | |
| ***Total Investment TAMS I+AEOS NPI (€ Millions)*** | 42.69 | 1.06 | 0.86 | 44.62 | |
| ***Total Investment TAMS II+I +AEOS NPI (€ Millions)*** | 51.71 | 65.62 | 132.22 | 249.56 | |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | | |

The total investment including TAMS I was just under €250 million and supported around 9,771 beneficiaries (of whom 765 or 7.8% were female) and this involved 25,229 farm holdings.

**Table 7.17: RDP Output for TAMS (II and I)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| ***Animal Housing/ Dairy Equipment/ Organic Capital Equipment (including rainwater harvesting) /Tillage Capital Investment Scheme (FA2A)*** | | | | | |
| No. of supported operations | 1,036 | 1,133 | 1,910 | 4,079 | |
| No. of Holdings Supported | 795 | 1,133 | 1,792 | 3,720 | 12,750 |
| ***Young Farmer's Capital Investment (FA2B)*** | | | | | |
| No. of supported operations | 59 | 514 | 1,172 | 1,745 | |
| No. of Holdings Supported | 59 | 514 | 1,048 | 1,621 | 4,000 |
| ***Animal Welfare, Safety and Nutrient Storage Scheme (FA3B)*** | | | | | |
| No. of supported operations | 2,112 | 252 | 642 | 3,006 | |
| No. of Holdings Supported | 1,979 | 252 | 607 | 2,838 | |
| ***Animal Welfare, Safety and Nutrient Storage Scheme (FA4A)*** | | | | | |
| No. of supported operations | 1 | 39 | 312 | 352 | |
| No. of Holdings Supported | 1 | 39 | 261 | 301 | |
| ***Pigs and Poultry Investment/ Tillage Capital Investment Scheme (FA5B)*** | | | | | |
| No. of supported operations | 1 | 44 | 167 | 212 | |
| No. of Holdings Supported | 1 | 44 | 147 | 192 | 400 |
| ***Low emission Slurry Spreading (FA5D)*** | | | | | |
| No. of supported operations | 45 | 209 | 337 | 591 | |
| No. of Holdings Supported | 45 | 209 | 337 | 591 | |
| ***Total No of supported operations*** | ***3,254*** | ***2,191*** | ***4,540*** | ***9,985*** | |
| *Total Paid Beneficiaries - Female (N)* | 184 | 75 | 506 | 765 | |
| *Total Paid Beneficiaries - Female (%)* | 6.1% | 3.4% | 11.1% | 7.8% | |
| ***No. of Beneficiaries*** | ***3,040*** | ***2,191*** | ***4,540*** | ***9,771*** | |

***Source: Indecon Analysis of DAFM Indicator Data.***

In considering support for generational change and succession in Irish agriculture, it is useful to consider the challenges which exist. Some of these are considered in the Box below which examines some of the issues relating to generational renewal in Irish agriculture and how the RDP addresses these.

**Box 7.1: Issues in Generational Renewal in the Irish Agriculture sector (Use of M4.1)**

Agricultural generational renewal in Ireland represents an important challenge which is in part addressed by some of the measures in the RDP. The previous Rural Development Programme (2007-2013) included a Young Farmer Installation Scheme and an Early Retirement Scheme. Both schemes only operated for a short period and were closed in 2009. Currently, three CAP measures in Ireland focus particular effort upon encouraging generational renewal: The Pillar 1 young farmer [86] supplement to direct payments; Measure 4.1 (TAMS II- a Young Farmer Capital Investment Scheme) and M16 Co-operation.

The Young Farmers Capital Investment Scheme is delivered on a rolling tranche basis with application windows every three months. The majority of applicants use approved advisors to develop applications, ensuring high quality submissions which ease the decision-making process. Simple applications are dealt with in a matter of minutes and, other than for new buildings, there is only a single payment made. More complex applications (such as for slurry storage or new buildings) generally take longer because they require multiple stages. Average time from application to approval is 4 months. Indecon analysis suggests that administration costs of the scheme are less than 5% of the total grant amount which based on Indecon experience appears to be comparable with other schemes. The application process is online. The most common reason for an approved application not proceeding is when applicants have difficulty finding the matched funding. The TAMS scheme offers young farmers a 60% capital investment grant, up to a maximum of €80,000 per holding, but is only available for the first five years of setting up in farming. A challenge reported by some farmers relate to cash flow issues in the stage following investment in the project.

The higher rate of capital grant (60% instead of 40%) is a key incentive which encourages farm families to engage in the process of transfer to the younger generation. For many sheep and beef farmers, returns are low and most need second jobs to provide a steady income. Competition from availability of jobs in other sectors with higher and more reliable incomes means that few young people are attracted to farming. Young farmer beneficiaries are mostly undertaking basic investments and upgrading machinery and buildings (e.g. fencing, milk storage, new milking parlour). The focus is largely on reducing costs (e.g. labour) and improving quality (and price) of the product: this is particularly the case in the dairy sector where there has been a focus on improved productivity.

The cost of leased land (and the associated payment schedule) is often seen as a significant barrier to entry. This has been helped by agri-tax changes on leased land. Additional problems relate to access to credit. Young farmers who do not already own the farmland tend to have limited or no assets against which they can apply for commercial loans. The need to source match funding for grants and the need to borrow the full cost of an investment initially, before the grant is paid (ex-post, once work is completed), can make access to the scheme difficult. Indecon would point out that while the measures in the RDP are important in generational renewal, wider policy instruments may also be needed.

***Source: Indecon-CCRI***

### Results and Impacts of TAMS II

The set of indicators capturing the results of TAMS II are shown in Table 7.18. The change in agricultural output on supported farms per annual work unit between 2015 and 2017 was recorded around 6.6%. This was calculated on values adjusted for real output prices (2015=100).

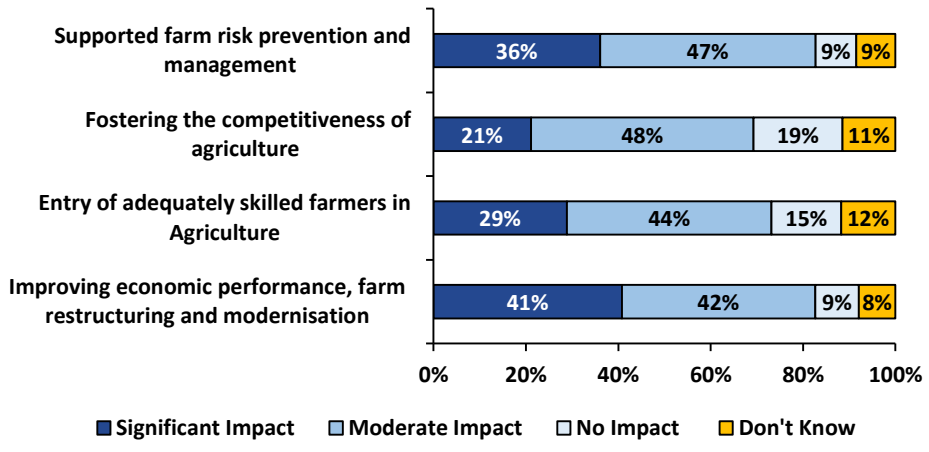
[86] A "young farmer" is defined as holding a Department Identifier; aged between 18 and 40; have not received grant aid under the previous Installation Aid Scheme; setup within the last 5 years; have ownership or lease of a development site; and meet educational requirements.

| Table 7.18: RDP Target Indicators TAMS II (FA2A) | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| T4 - % of holdings with support for investments in restructuring/modernisation | 1.37 | 1.29 | 2.66 | 9.11 |
| R2 - Change in agri. output on supported farms/AWU* | 6.57% | Data not available | Data not available | |
| T5 - % of holdings with Young Farmer supports | 0.41% | 0.75% | 1.16% | 2.86 |
| T7 - % of farms in risk management schemes | Not applicable | Not applicable | Not applicable | |
| **** This is calculated over a two-year period from 2015 to 2017 looking over the change in productivity across these periods. This refers to TAMS beneficiaries compared to non-TAMS beneficiaries*** | | | | |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | |

It must also be noted that there are energy efficiency incentives for farmers in Ireland outside of the RDP. For example, the Sustainable Energy Authority of Ireland (SEAI) administers a capital grant scheme for dairy farmers. The technologies covered under the scheme include Variable Speed Drive (VSD) Vacuum Pumps and VSD milk pumps. As with TAMS II, a grant of 40% towards the capital cost is provided. In 2019, there has been a TAMS II call explicitly for the installation of capital investment energy efficient technologies such as Solar PV installations.

TAMS is only one measure that contributes to the competitiveness aspects of the RDP. Other measures are also likely to contribute. Figure 7.13 shows that most of the farmer beneficiaries suggested that the RDP had significant to moderate impacts on the economic performance, farm restructuring, modernisation, risk prevention and management, and entry of adequately skilled farmers in agriculture.

**Figure 7.13: Wider Impact of RDP on Farm Viability and Competitiveness**




***Source: Indecon survey***

As TAMS II is one of the key measures of the RDP, we have undertaken detailed counterfactual econometric analysis of the impacts of this measure. This analysis is outlined below. Compared to ANC and GLAS, the number of beneficiaries of TAMS II grants is relatively low,[87] with around five percent reported in the NFS data; however, the mean grant exceeding €11,000 is relatively high.

**Table 7.19: TAMS II- Grant Summary Statistics (2015-2017)**

| Year | Total Beneficiaries | Total Farms (N) | Beneficiary (%) | Total Grants Awarded (€) | Mean Amount of Grant (€) |
|---|---|---|---|---|---|
| 2015 | 77 | 898 | 9% | 481,785.80 | 6,256.96 |
| 2016 | 21 | 861 | 2% | 204,598.36 | 9,742.78 |
| 2017 | 41 | 861 | 5% | 878,675.06 | 21,431.10 |
| **Total** | **139** | **2,620** | **5%** | 1,565,059.23 | **11,259.42** |

***Source: Indecon Analysis of NFS data***
***Note: The Amounts are adjusted for Agricultural Output Price Index (2015=100) and figures are unweighted. It is possible that some of the expenditure in 2015 relates to TAMS I***

The difference of means t-test results, as shown in Table 7.20, indicates that farmers receiving TAMS support during the 2015-2017 period are on average larger, have higher income, output and investment levels. Moreover, since there is no significant difference between the crops output, the differential for farm output between TAMS II recipients and non-recipients is driven from higher farm livestock output. The significance of the differences recorded in these factors imply that these farm characteristics may serve as important determinants for the participation in TAMS II. Thus, it is imperative to control for these factors in estimating the impact of TAMS II on farm output, productivity and other relevant outcomes.

**Table 7.20: Difference of Means Tests for TAMS II Grant Recipients vs. Non-Recipients**

| Variables | Control (TAMS II Grant=0) (N=2,620) | Treatment (TAMS II Grant =1) (N=139) | Difference (C-T) | P-Value |
|---|---|---|---|---|
| Total Land Farmed (ha.) | 63.70 | 80.60 | -16.89*** | 0.00 |
| Farmer Age | 54.81 | 49.56 | 5.25*** | 0.00 |
| Farm Family Income (€) | 40,979.27 | 76,701.64 | -35,722.37*** | 0.00 |
| Farm Gross Output (€) | 121,743.29 | 234,877.27 | -113,133.98*** | 0.00 |
| Gross Output: Crops (€) | 8,496.68 | 5,225.42 | 3,271.27 | 0.28 |
| Gross Output: Livestock (€) | 92,586.99 | 202,382.30 | -109,795.31*** | 0.00 |
| Total Labour Units | 1.34 | 1.82 | -0.47*** | 0.00 |
| Total Livestock Units | 83.20 | 141.44 | -58.24*** | 0.00 |
| Total Farm Costs (€) | 80,781.53 | 158,176.12 | -77,394.59*** | 0.00 |
| Depreciation: Machinery | 5,572.62 | 10,482.47 | -4,909.85*** | 0.00 |
| Depreciation: Buildings | 3,536.37 | 7,390.55 | -3,854.18*** | 0.00 |
| Depreciation: Land Imp. | 559.39 | 1,137.15 | -577.76*** | 0.00 |
| Investment: Machinery | 45,072.70 | 86,077.56 | -41,004.86*** | 0.00 |
| Investment: Buildings | 57,070.65 | 123,662.11 | -66,591.47*** | 0.00 |
| Investment: Livestock. | 90,029.22 | 163,457.54 | -73,428.32*** | 0.00 |
| Value of Fertilisers (€) | 8,805.16 | 15,239.35 | -6,434.18*** | 0.00 |

***Source: Indecon Analysis of NFS Data***

[87] There was no TAMS II actual investment in 2015 but farmer beneficiaries would have been approved in this year. For this reason, we include 2015 in our analysis although it is likely that the majority of this investment refers to TAMS I and NPI investments.

The results of the baseline fixed effects (FE) model are reported in Table 7.21. The coefficients indicate a positive relationship between TAMS II grant and log of farm output, although the magnitude is small. Also, the fixed effects (FE) results do not show any significant relationship to date between a TAMS II grant and farm productivity.

The regressions in the table below control for a range of important co-variates, the time trend and unobserved time invariant fixed effects. The issue of self-selection of farmers into the TAMS II scheme suggest caution is needed in interpreting the fixed effects (FE) results as causal estimates. In order to deal with this problem, counterfactual modelling using techniques such as Regression Adjustment (RA), and Propensity Score Matching (PSM) were developed by Indecon. The results from these models are shown in Table 7.22 and the sample considers the period from 2015 to 2017.

**Table 7.21: TAMS II- Grant Fixed Effects Results for Output and Productivity**

| Variables | (1) Log Output TAMS II- FE Model | (2) Log Productivity TAMS II- FE Model |
|---|---|---|
| **TAMS II- Grant** | **0.0285**** | **0.0260** |
| | **(0.0138)** | **(0.0160)** |
| Log of Labour Units | 0.132*** | |
| | (0.0334) | |
| Log of Farm Size | 0.488*** | 0.532*** |
| | (0.126) | (0.147) |
| Log of Farm Size Sq. | -0.0358** | -0.0506*** |
| | (0.0160) | (0.0186) |
| Year (Time Trend) | 0.0315*** | 0.0265*** |
| | (0.00267) | (0.00309) |
| Farmer Age | -0.00114 | 0.00178 |
| | (0.00212) | (0.00246) |
| Farmer Age Sq. | 1.25e-05 | -1.61e-05 |
| | (2.27e-05) | (2.63e-05) |
| Log of Capital Depreciation | 0.128*** | 0.108*** |
| | (0.0183) | (0.0213) |
| Log of Fuel | 0.0291*** | 0.0220*** |
| | (0.00675) | (0.00784) |
| Constant | -54.44*** | -44.42*** |
| | (5.417) | (6.277) |
| Observations | 2,769 | 2,769 |
| R-squared | 0.201 | 0.098 |
| Number of Farm Ids | 824 | 824 |
| Soil Group FE | Yes | Yes |
| Farm System | Yes | Yes |
| Time Trend | Yes | Yes |

***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

The results from RA and PSM models[88] do not indicate any significant impact of a TAMS II grant on farm output and productivity to date. This result was expected, given that the data records a maximum of only three periods post TAMS II receipt which is relatively short for the impact to be evident[89] (see Table 7.22). In order to examine the likely impacts over time, Indecon completed an econometric counterfactual analysis for the full sample from 2001 to 2017 (see Table 7.23).

**Table 7.22: Impact of TAMS II on Output and Productivity (2015-2017)**

| Estimation Model | Outcomes Variables | ATET | Observations |
|---|---|---|---|
| **Regression Adjustment Model (RA)** | Log Output | 0.00610<br>(0.0206) | 2,769 |
| | Log Productivity | -0.0443<br>(0.0295) | 2,769 |
| **Propensity Score Matching** | Log Output | 0.0465<br>(0.0545) | 2,791 |
| | Log Productivity | 0.00612<br>(0.0495) | 2,791 |

***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

The results for the full period counterfactual analysis are presented in Table 7.23. A positive impact of TAMS II grant on farm output and productivity is found. The magnitude of impact from the RA and propensity score matching suggests a positive impact on output of 6–7% and an increase in productivity of the order of 5–6%.

**Table 7.23: Impact of TAMS II on Output and Productivity (2001-2017)**

| Estimation Model | Outcomes Variables | ATET | Observations |
|---|---|---|---|
| **Regression Adjustment Model (RA)** | Log Output | 0.0728***<br>(0.0111) | 15,170 |
| | Log Productivity | 0.0546***<br>(0.0130) | 15,168 |
| **Propensity Score Matching** | Log Output | 0.0686**<br>(0.0304) | 15,250 |
| | Log Productivity | 0.0665***<br>(0.0246) | 15,246 |

***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

In addition to the Propensity Score Matching economic model, Indecon also considered an alternative modelling approach using inverse probability weighting regression adjustment model. This showed a positive although smaller impact on output and productivity. Indecon notes that guidelines from the European Evaluation Helpdesk refers to use of Propensity Score Matching Model as an analytical technique.

[88] A discussion of these two different econometric techniques is included in section 3.8

[89] It must also be noted that some of the capital investment support under Measure 4 is for non-productive investments which are unlikely to have any measurable impact on output and productivity but will help improve the environmental impact of the farm

The assessment of the TAMS II grant for the CAP impact indicators using fixed effects estimation is shown in Table 7.24 while the counterfactual results are presented in Table 7.25. The results demonstrate a positive and statistically significant relationship between TAMS II grant and AEI and AFI. However, the results in Table 7.25 do not suggest any significant relationship between TAMS II and farm Total Factor Productivity (TFP).

**Table 7.24: TAMS II- Grant Fixed Effects Results for CAP Indicators**

| Variables | (1) Ag. Entre. Income TAMS II- FE Model | (2) Ag. Fact. Income TAMS II- FE Model | (3) Ag. Entre. Income TAMS II- FE Model |
|---|---|---|---|
| **TAMS II- Grant** | **0.0461**** | **0.0463**** | **-0.0476** |
| | **(0.0229)** | **(0.0221)** | **(0.0390)** |
| Log of Labour Units | -0.912*** | -0.846*** | |
| | (0.0560) | (0.0537) | |
| Log of Farm Size | 0.964*** | 1.058*** | 0.381 |
| | (0.211) | (0.203) | (0.594) |
| Log of Farm Size Sq. | -0.0638** | -0.0796*** | -0.0398 |
| | (0.0268) | (0.0257) | (0.0653) |
| Year (Time Trend) | 0.0528*** | 0.0529*** | -0.0317*** |
| | (0.00446) | (0.00429) | (0.00863) |
| Farmer Age | 0.00211 | 0.000908 | -0.00461 |
| | (0.00354) | (0.00341) | (0.00667) |
| Farmer Age Sq. | -1.97e-05 | -8.38e-06 | 6.73e-06 |
| | (3.78e-05) | (3.64e-05) | (6.90e-05) |
| Log of Capital Depreciation | -0.0679** | -0.0162 | -0.0907 |
| | (0.0307) | (0.0294) | (0.0754) |
| Log of Fuel | 0.00195 | 0.00166 | -0.0475** |
| | (0.0113) | (0.0108) | (0.0203) |
| Constant | -97.13*** | -97.93*** | 64.63*** |
| | (9.049) | (8.701) | (17.44) |
| Observations | 2,757 | 2,765 | 1,112 |
| R-squared | 0.224 | 0.224 | 0.042 |
| Number of Farm Ids | 821 | 824 | 458 |
| Soil Group FE | Yes | Yes | Yes |
| Farm System | Yes | Yes | Yes |
| Time Trend | Yes | Yes | Yes |

***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***
***Indecon Analysis on NFS Data.***

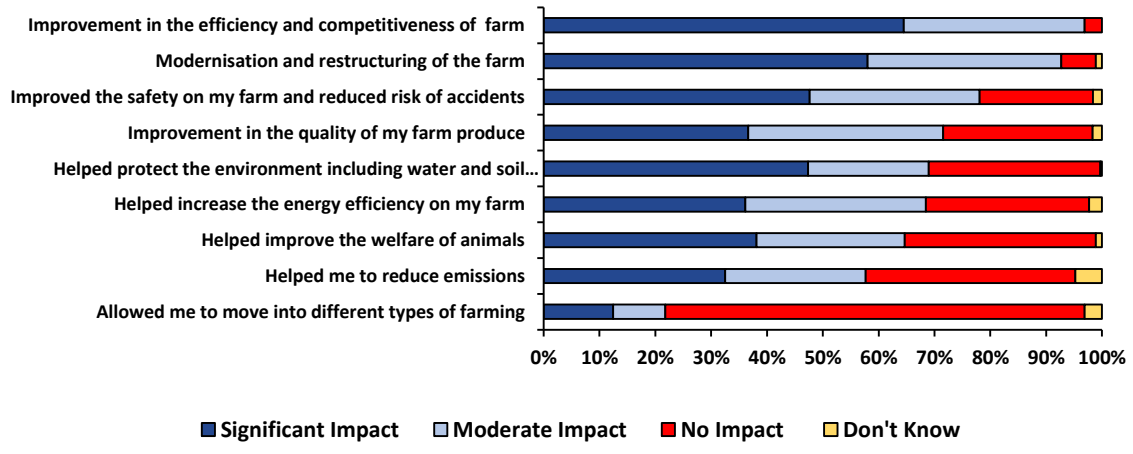
The counterfactual analysis for the CAP impact indicators is consistent with the results for farm output and productivity with no significant impact evident to date. As mentioned earlier, this is likely due to time period required for the TAMS II grants to translate into relevant economic impacts. It must also be noted that some of the capital investment support under Measure 4 is for non-productive investments[90]which are unlikely to have any measurable impact on output and productivity but will help improve the environmental impact of the farm.

[90] Non Productive Investments (NPIs) are capital investment grants for projects that improve the environmental sustainability of the farm

| Table 7.25: Impact of TAMS on CAP Indicators (2015-2017) | | | |
|---|---|---|---|
| **Estimation Model** | **Outcomes Variables** | **ATET** | **Observations** |
| **Regression Adjustment Model (RA)** | Ag. Entre. Income | -0.00947<br>(0.0359) | 2,757 |
| | Ag. Fact. Income | -0.00114<br>(0.0335) | 2,765 |
| | TFP | -0.0328<br>(0.0235) | 1,112 |
| **Propensity Score Matching** | Ag. Entre. Income | -0.00301<br>(0.0589) | 2,779 |
| | Ag. Fact. Income | -0.00605<br>(0.0541) | 2,787 |
| | TFP | -0.0531*<br>(0.0274) | 1,086 |
| ***Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1***<br>***Indecon Analysis on NFS Data.*** | | | |

In addition to the econometric analysis, Indecon undertook a survey of farms to evaluate some key aspects of the scheme. Figure 7.14 shows the distribution of impacts attributed to the investment from TAMS II grant. A majority of respondents in the survey deemed TAMS II as an important contributor to achieving improvement in the efficiency and competitiveness of farms. Moreover, the survey respondents also ranked as significant to moderate the impact from TAMS II on modernisation/restructuring of farms, improvement in safety and reduced risk, quality of farm produce, achieving environmental protection for water and soil, and increasing the energy efficiency on the farm. However, a portion of respondents suggested that there was no impact of TAMS II capital investment on reduction of farm emissions or the move to alternative farming practices.

**Figure 7.14: Impact of TAMS II Investment Support**

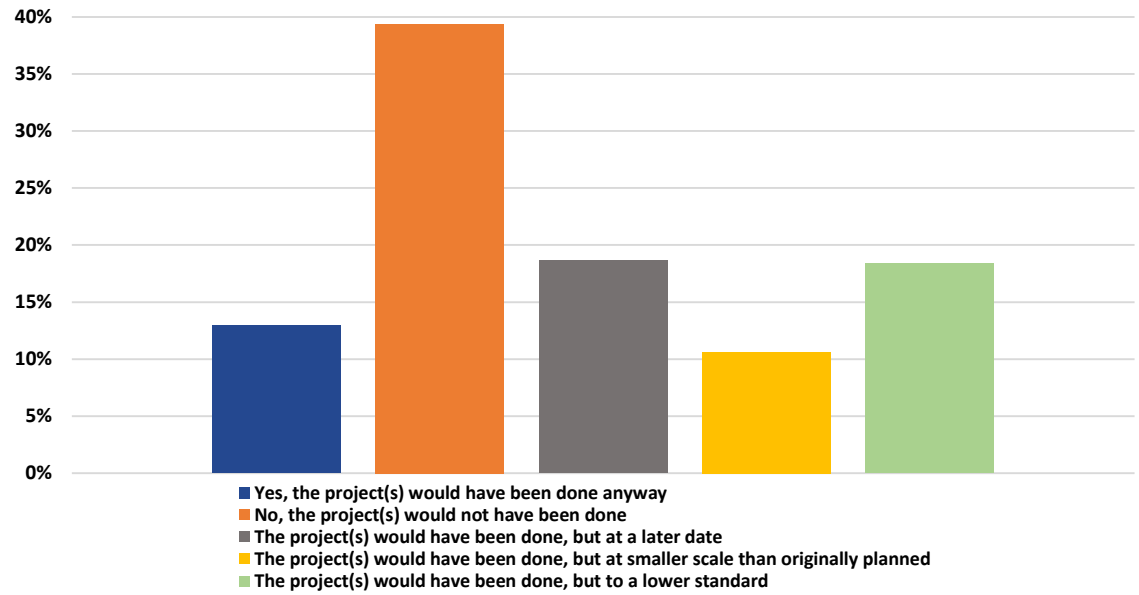



***Source: Indecon survey***

The impact of TAMS II is also captured by farmer responses with regards to the outcomes that would have followed if the TAMS II grant was unavailable. The responses, as shown in Figure 7.15, suggest that 39% of farmers believed that the project would have not gone ahead if the funding support was

unavailable. Only 13% indicated that the project would have gone ahead if the funding support was unavailable. While the results suggest some level of deadweight, they also indicate that the support was a factor for many recipients in proceeding with the investments.

**Figure 7.15: Outcomes if TAMS II Support was not available**




*Source: Indecon survey*

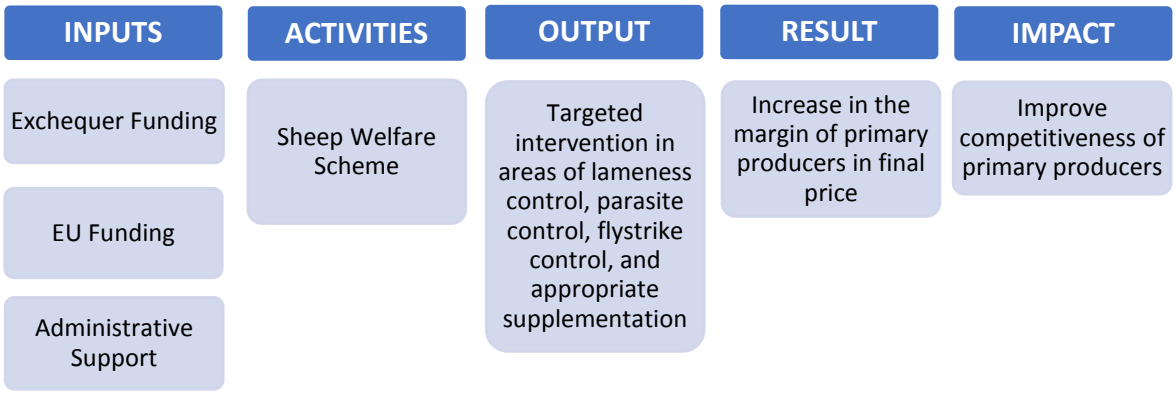
## 7.5 Measure 14 and Measure 14.1: Sheep Welfare Scheme

The Sheep Welfare Scheme under M14.1 is aimed to improve sheep welfare by targeting specific issues such as lameness, parasites, and flystrike control. The scheme has a one-year contract with automatic renewal and a maximum length of four years. The key focus area/CEQ addressed by M14.1 is:

- FA3A: Improving competitiveness of primary producers by better integrating them into the agri-food chain

The PLM for the scheme is shown in Figure 7.16 and it can be concluded that the number of activities, output, results and impact indicators for M14.1 are very specific and do not overlap greatly with other Measures of RDP 2014-2020.

**Figure 7.16: Programme Logic Model - Measure 14**




***Source: Indecon***

There are multiple options available under the sheep welfare scheme, as shown in Table 7.26.[91] The applicants are required to choose two options (one from each category A and B) for the duration of the full term of the contract. Farmer are categorised as lowland and hill flock based on the following criteria:

- Applicants with greater than 50% lowland ewes must choose from the lowland options.
- Applicants with greater than 50% hill type ewes must choose from the options for hill flocks.

Beneficiaries are paid €10 per eligible ewe or €66.66 per livestock unit per year. The payment is based on the costs associated with the actions required to be carried out in the scheme. The beneficiaries are paid once these actions are completed.

**Table 7.26: Options in Sheep Welfare Scheme**

| **Lowland Flock** | **Hill Flock** |
|---|---|
| **Category A** | **Category A** |
| Lameness Control | Mineral Supplementation Ewes |
| Mineral Supplementation Ewes | Meal Feeding Lamb (post weaning) * |
| **Category B** | **Category B** |
| Parasite Control | Parasite Control |
| Scanning | Scanning |
| Flystrike Control | Mineral Supplementation* |

***Source: Summary of Rural Development Programme Ireland 2014-2020***
****:** Hill flocks may not choose both Mineral Supplementation of Lambs and Meal feeding of lamb post weaning*

[91] Summary of Rural Development Programme Ireland 2014-2020 (September, 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

The scheme began operations in 2017 and the total public spending at 2018 year-end was €33.5 million; however, the overall budget allocation is €100 million, which is unlikely to be spent given current participation levels.

| Table 7.27: RDP Funding Input for Sheep Welfare Scheme (FA3A) | | | | |
|---|---|---|---|---|
| **Indicators** | **2017** | **2018** | **2017-2018** | **Planned Output 2023** |
| Total Public Expenditure (€ Millions) | 15.9 | 17.6 | 33.5 | 100.0 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | |

The eligibility criteria for benefiting from this scheme requires applicants to have a flock number and breeding ewes on their holding, in addition to the declaration of breeding ewes on the 2016 Sheep Census return. The maximum number of eligible ewes is based on the historic reference period (2014-2015 based on the Sheep Census). This ensures that no risk is involved to the overall budget ceiling allocated to the scheme. In 2018, a total of over 274,401 livestock were supported across just over 20,000 beneficiaries. This is 59% of the target beneficiary number fixed at 34,000 (see Table 7.28). Overall, the scheme has supported around 15% of the total holdings in the RDP.

| Table 7.28: RDP Output for Sheep Welfare Scheme (FA3A) | | | |
|---|---|---|---|
| **Indicators** | **2017** | **2018** | **Planned Output 2023** |
| No. of livestock supported | 237,764 | 274,401 | |
| No. of beneficiaries/farm holdings advised | 20,685 | 20,172 | 34,000 |
| % of holdings supported by the scheme per year | 14.79% | 14.42% | |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | |

**Results and Impact of Sheep Welfare Scheme**

One of the key indicators set for assessing the impact of this scheme is percentage of agricultural holdings supported. So far, this has been recorded as 14.4%. In terms of the overall performance of the sector, NFS data is used to derive the output and productivity of farms belonging to the sheep farm systems from 2014 onwards. The summary statistics shown in Table 7.29 suggest that 14% of farmers in the NFS sample were categorised as sheep farmers from 2014-2017.

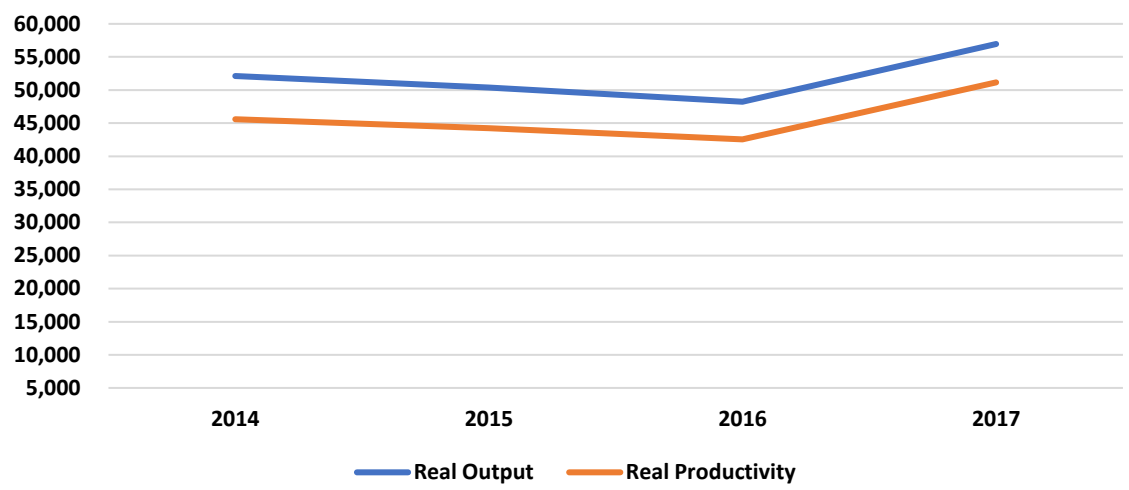
| Table 7.29: Sheep Welfare Scheme Summary Statistics (2014-2017) | | | |
|---|---|---|---|
| **Year** | **Total Sheep Farms** | **Total Farms (N)** | **Sheep Farm %** |
| 2014 | 115 | 892 | 13% |
| 2015 | 124 | 898 | 14% |
| 2016 | 119 | 861 | 14% |
| 2017 | 121 | 861 | 14% |
| **Total** | **479** | **3512** | **14%** |
| ***Source: Indecon Analysis of NFS data*** | | | |

In general sheep farmers have lower incomes, as compared to some other farmers and this is confirmed from the difference in mean t-statistics results as shown in Table 7.30. Although the sheep farms have larger holdings and are older in terms of farmer age, these farms have less family farm income, lower gross output, fewer units of livestock and labour, and also have lower amounts of farm investment. This is expected given the distribution of farm output across sectors in Ireland is more towards livestock and tillage.

| Table 7.30: Difference of Means Tests for Sheep vs. Non-Sheep Farmers | | | | |
|---|---|---|---|---|
| **Variables** | **Non-Sheep TN=3,033** | **Sheep N=479** | **Difference (TN-T)** | **P-Value** |
| Total Land Farmed (ha.) | 62.91 | 74.66 | -11.75*** | 0.00 |
| Farmer Age | 54.21 | 56.76 | -2.55*** | 0.00 |
| Farm Family Income (€) | 46,252.11 | 20,195.44 | 26,056.67*** | 0.00 |
| Farm Gross Output (€) | 137,633.85 | 61,040.94 | 76,592.91*** | 0.00 |
| Gross Output: Crops (€) | 9,426.06 | 1,457.78 | 7,968.28*** | 0.00 |
| Gross Output: Livestock (€) | 107,212.34 | 38,717.97 | 68,494.37*** | 0.00 |
| Total Labour Units | 1.39 | 1.22 | 0.16*** | 0.00 |
| Total Livestock Units | 89.04 | 66.78 | 22.26*** | 0.00 |
| Total Farm Costs (€) | 91,400.27 | 40,850.50 | 50,549.77*** | 0.00 |
| Depreciation: Machinery | 6,262.16 | 2,938.90 | 3,323.26*** | 0.00 |
| Depreciation: Buildings | 4,040.00 | 1,707.76 | 2,332.24*** | 0.00 |
| Depreciation: Land Imp. | 629.64 | 320.51 | 309.13*** | 0.00 |
| Investment: Machinery | 50,825.62 | 23,112.81 | 27,712.81*** | 0.00 |
| Investment: Buildings | 65,507.63 | 27,142.83 | 38,364.80*** | 0.00 |
| Investment: Livestock. | 99,686.27 | 54,788.19 | 44,898.08*** | 0.00 |
| Value of Fertilisers (€) | 9,961.62 | 3,752.99 | 6,208.62*** | 0.00 |
| ***Source: Indecon Analysis of NFS Data*** | | | | |

Data on output and productivity for sheep farms is presented in Figure 7.17. The values are adjusted for the agricultural output price index (2015-100) and the results suggests improvement in productivity and gross output for sheep farms post 2016 after period of marginal decline since 2014.

**Figure 7.17: Mean Agricultural Output and Productivity for Sheep Farms (2014-2017)**




*Source: Indecon Analysis of NFS data*

## 7.6 Measure 16: Co-operation

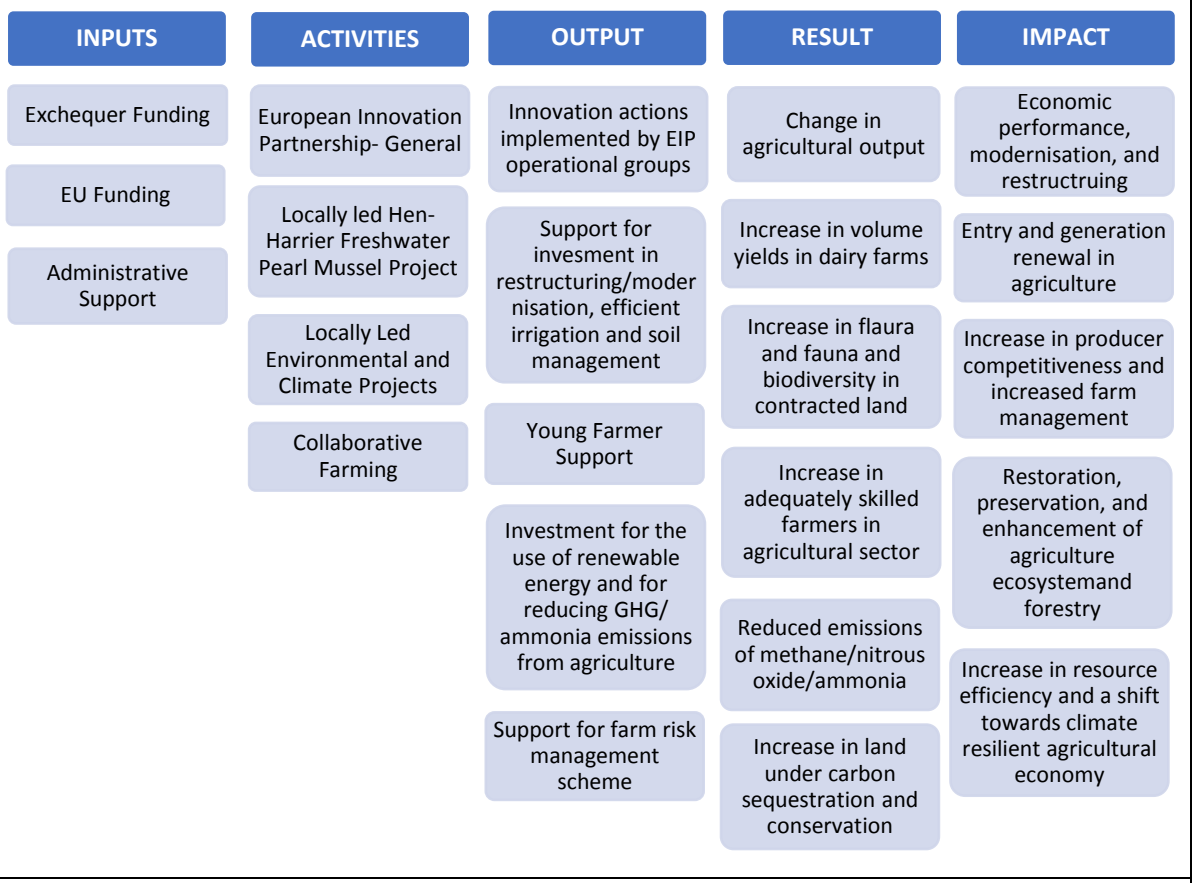
Measure 16 contributes to a large number of focus areas/common evaluation questions of RDP 2014-2020 through various submeasures, as listed below:

- Submeasure 16.1: European Innovation Partnership (EIPs) - General EIPs.
- Submeasure 16.1: European Innovation Partnerships – Locally Led Hen Harrier and Freshwater Pearl Mussel Projects.
- Submeasure 16.1: European Innovation Partnerships – Locally Led Environmental and Climate Projects.
- Submeasure 16.3: Support for Collaborative Farming.

Overall, the expenditure on the various submeasures within Measure 16 is small. For this reason, it is difficult to make any definitive conclusions on the results and impacts of these measures. However, in this section, we set out the rationale for these measures and highlight the early activity in achieving the various objectives of these measures.

The PLM for M16 is shown in Figure 7.18, where each of the submeasures are listed within the activities undertaken in this scheme. The results and impact of this M16 overlap with other RDP measures and this is due to large set of focus areas/CEQs addressed within M16.

**Figure 7.18: Programme Logic Model - Measure 16**




***Source: Indecon***

**Submeasure 16.1: European Innovation Partnership (EIP) - General EIPs**

Submeasure 16.1 aims to promote innovative processes, products or practices which shall enhance the rural knowledge base, encourage competitiveness and support risk management in agriculture. Total funding of €59 million is available to for the three EIP submeasures. Operational groups have been set up to assist in implementing innovative projects that make a contribution to Rural Development Priorities. The EIP involves the collaboration of farmers, scientists, advisors, NGOs and others in operational groups to take advantage of new opportunities and to address specific issues. The goal of these innovation partnerships is the experimentation of new ideas and practices which can if successful be used by farmers on a wider scale in order to improve productivity, enhance resource efficiency and pursue practices that lead to more sustainable farming. The focus areas/CEQs addressed by this submeasure (Stream A) include:

- FA2A: Improving the economic performance of all farms and facilitating farm restructuring and modernisation;
- FA2B: Facilitating the entry of adequately skilled farmers into the agricultural sector;

- FA3A: Improving competitiveness of primary producers by better integrating them into the agri-food chain through quality schemes; and
- FA3B: Supporting farm risk management and prevention.

*Input and Activities of General EIPs*

The support for General EIPs is made in the form of grants that are provided in two separate stages, which are as follows:[92]

- Stage 1: Support for the development of Operational Group Plans for those groups emerging from an initial call for submissions process; and
- Stage 2: Support for the costs of implementing the Operational Group Plans for successful applicants. This will be based on the price set out in the successful applications.

The amounts and rates for support are based on the cost given in the successful proposals, which are reimbursed on the basis of returns/receipts received from the Operational Groups (OGs). So far, the total public expenditure under this measure has been just over €0.1 million recorded at the end of 2018 (see Table 7.31).

**Table 7.31: RDP Funding Input for General EIPs (FA2A/2B/3A/3B)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure - FA2A (€ Millions) | 0 | 0.044 | 0.026 | 0.070 | 1.0 |
| Total Public Expenditure - FA2B (€ Millions) | 0 | 0.000 | 0.000 | 0.000 | 1.0 |
| Total Public Expenditure - FA3A (€ Millions) | 0 | 0.031 | 0.008 | 0.039 | 1.0 |
| Total Public Expenditure - FA2B (€ Millions) | 0 | 0.000 | 0.000 | 0.000 | 1.0 |
| ***Total Public Expenditure (€ Millions)*** | ***0*** | ***0.075*** | ***0.034*** | ***0.109*** | ***4.0*** |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | | |

Across two open calls for EIPs, a total of 187 applications were received, of which only 21 were successful. The success rate in Open Call 1 was only 6.38% as compared to 13% in Open Call 2. Amongst the successful applications for Open Call 1, three belonged to general EIPs and nine were under the locally led projects, which also comprised all of the nine approved applications for Open Call 2. The low success rates suggest the need for the promotion of greater information on eligibility criteria.

[92] Ibid.

| Table 7.32: European Innovation Projects (Summary of Call Process) | | | |
|---|---|---|---|
| **Open Call 1** | Applied | 118 | The Approved EIPs consist of:<br>3 General EIPs<br>9 Locally Led Environment and Climate EIPs |
| | Short-listed | 23 | |
| | Approved | 12 | |
| **Open Call 2** | Applied | 69 | The 9 approved EIPS were all for locally-led environment and climate projects. |
| | Short-listed | 19 | |
| | Approved | 9 | |
| ***Source: DAFM*** | | | |

**Output of General EIPs**

The recruitment of OGs under General EIPs is through an open call competitive tender and focuses on the identified themes within the aims and objectives of this submeasure. The OGs are targeted with aim of involving a wide-range of individuals including from farmers, advisors, researchers, NGOs and agri-business. It is anticipated that this process will the cross-fertilisation of approaches, ideas, and experience. Table 7.33 shows the total number of partners supported within the EIP groups where the majority participants are farmers, followed by NGOs and SMEs.

| Table 7.33: RDP Mandatory Indicators for General EIPs (FA 2A, 2B, 3A, 3B) | | | |
|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** |
| No. of EIP groups supported | 0 | 7 | 4 |
| ***No. of partners in EIP groups*** | | | |
| Farmers | 0 | 27 | 82 |
| NGOs | 0 | 17 | 3 |
| SMEs | 0 | 12 | 6 |
| Advisors | 0 | 5 | 15 |
| Others | 0 | 2 | 4 |
| Research institutes | 0 | 1 | 11 |
| ****All supported projects were at planning stage in 2018.***<br>***Source: Indecon Analysis of DAFM Indicator Data.*** | | | |

It is clear that the level of take-up at this stage is very low but is important to note that this is a new aspect of the RDP and has taken time to implement. We outline some of the EIPs that have been formed following formal procurement and call processes. Much of the expenditure relating to the implementation of selected projects will occur in the remaining years of the 2014-2020 RDP. The key target indicators for the general EIPs are shown in Table 7.34. The planned output level has been revised up to 22 from an original target of 10. It must be noted that these relate to locally-led EIPs rather than general EIPs.

| Table 7.34: RDP Indicators for Locally-Led EIPs and Collaborative Farming | | | |
|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **Planned Output 2023** |
| No. of EIP operational groups to be supported* | 1 | 7 | 22 |
| No. of other cooperation operations** | 654 | 129 | 1,200 |
| ***: Refers to those who received implementation payments*<br>***: Refers to Number of New Farm Partnership agreements funded by the Collaborative Farming Grant Scheme*<br>*Source: Indecon Analysis of DAFM Indicator Data.* | | | |

**Background to Locally led projects under Measure 16**

This submeasure is aimed to develop locally-led schemes to target the conservation of Hen-Harrier, the Freshwater Pearl and Mussel, and the environmental and climate projects. The actions undertaken in this submeasure are still in their infancy and the programme is expected to attain scale by 2021. Specifically, the Hen-Harrier and Freshwater Pearl and Mussel conservation has been developed in consultation with the National Parks and Wildlife Service and are crucial for the sustainability and enhancement of the national population levels. The Hen-Harrier scheme is a five-year project aimed at six core areas out of a total of 14 nationally important areas (containing 45% of the national Hen-Harrier population). The project incentivises farmers to manage their fields so that conditions will improve in the hen harrier habitat. It is flexible for each individual farmer whose annual farm plan will contain a list of actions nominated by the farmer with the target of improving their area as a habitat for the Hen-Harrier. It is noted that the preservation of the Hen-Harrier is also supported through GLAS. The Hen-Harrier Project comprises the following elements:

- The programme is designed to enhance High Nature Value farmland landscapes by working with farmers to ensure that upland management is rewarded and valued for the delivery of vital ecosystem services.
- By incentivising habitat quality objects, the Hen-Harrier Programme is focused on helping farmers sustain cultural landscapes and vibrant rural communities.
- The programme seeks to recognise and reward the positive role of farming by adding real value to the Hen-Harrier and its habitat. It provides an opportunity for farmers to derive an additional income from their land and secure the economic viability of agricultural enterprises.

The Freshwater Pearl Mussel Project is a six-year project (total budget €10 million) which commenced in May 2018 and targets eight out of a total of 27 Freshwater Pearl Mussel catchments (holding approximately 80% of the national population).[93] The Freshwater Pearl Mussel project comprises of the following elements:

- A results-based agri-environmental programme which provides farmers with an opportunity to be recognised and financially rewarded for delivering environmental benefits. These are

[93] The 8 catchment areas are along the Blackwater, Caragh and Currane rivers in Kerry, the Dawros and Owenriff rivers in Galway, the Glaskeelan River in Donegal, the Bundorragha River in Mayo and the Ownagappul River in Cork.

measured by targets which are set for individual farmers who then choose the most appropriate management to achieve the target;

- Community outreach in each project catchment area to promote environmental awareness amongst the local communities by working with schools and local interest groups;
- Promoting innovative agriculture to reduce environmental impact and/or enhance the environment;
- Developing market opportunities for agricultural producers that complement the overall environmental targets of the project; and
- Supporting research and development relevant to the aims of the project.

The focus areas/CEQs addressed under this submeasure include:

- FA4A/4B/4C (P4): Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry; and
- FA5A/5B/5C/5D/5E (P5): Promoting resource efficiency and supporting the shift toward a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors.

*Inputs and Activities of Locally-led projects*

Operational Groups (OGs) are setup in the scheme through which support is delivered. The OGs provide training to farmers, co-ordinate the input of relevant stakeholders, oversee implementation and evaluate outputs of the scheme. The support for environmental and climate projects is delivered in two stage:

- Stage 1: Support for the development of Operational Group Plans; and
- Stage 2: Support for the costs of implementing the Operational Group Plans for successful applicants.

The total RDP spending for this submeasure has addressed focus areas under the domain of P4 with small expense of €680,462 so far, representing only 1.6% of the specified target. The support for CEQs pertaining to P5 have not been delivered and it is expected that the programme will expand in next few years. However, there is a target amount of €12.5 million fixed to be spent on the focus areas of Priority Area 5 during the tenure of the scheme.

**Table 7.35: RDP Funding Input for EIP-Locally Led Projects (M16.1)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure - P4 (€ Millions) | 0 | 0.7 | 2.8 | 3.5 | 42.5 |
| Total Public Expenditure - P5 (€ Millions) | 0 | 0.0 | 0.0 | 0 | 12.5 |

***Source: Indecon Analysis of DAFM Indicator Data.***

*Output of Activities of Locally-led projects*

The OGs aim to involve wide-range of individuals ranging from farmers, advisors, researchers, NGOs and agri-business. The output of the program in terms of the number of EIP groups supported and partners involved in EIP group is shown in Table 7.36. As mentioned earlier, the programme is expected to expand in coming years and is still in its infancy.

**Table 7.36: RDP Mandatory Indicators for EIP-Locally Led Projects (FA5A)**

| Indicators | 2014-2016 | 2017 | 2018 |
|---|---|---|---|
| No. of EIP groups supported* | 0 | 9 | 27 |
| ***No. of partners in EIP groups*** | | | |
| Farmers | 0 | 0 | 69 |
| NGOs | 0 | 22 | 25 |
| SMEs | 0 | 1 | 16 |
| Advisors | 0 | 9 | 35 |
| Others | 0 | 10 | 61 |
| Research institutes | 0 | 4 | 20 |
| ***Note:**** | | | |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | |

It must be noted that most of the EIP expenditure at the end of 2018 relates to preparation of project plans rather than the actual implementation of these plans. As the end of 2018, only eight projects had received public funding for implementation activities. A number of projects are due to become operational in 2019 but these projects will be significantly smaller than the Hen-Harrier EIP or the Pearl Mussel EIP with budgets typically around €1 million per EIP. So far, these projects have only received project funding relating to developing project plans. It also be noted that of the 27 projects supported in 2018, 10 projects did not proceed past the project planning stage.

**Table 7.37: EIP projects that were funded for operational activities in 2018**

| Name of Project | Total Expected Budget (€million) |
|---|---|
| Hen Harrier | 25 |
| Fresh Water Pearl Mussel | 10 |
| Biodiversity Regeneration in a Dairying Environment (BRIDE) | 1.1 |
| Blackstairs Farming Futures | 1.5 |
| DANU Farming Group | 0.4 |
| The Conservation of Breeding Curlew in Ireland | 1.1 |
| Sustainable Uplands Agri-Environment Schemes (SUAS) | 1.95 |
| A Sustainable Agricultural Plan for the MacGillycuddy Reeks | 0.95 |
| ***Source: DAFM & NRN*** | |

**Discussion of EIPs**

The Hen-Harrier EIP has successfully signed contracts with 629 farmers. Payments to these farmers began in November 2018 and the total expenditure so far is €1.74 million. Progress has been slower with the Freshwater Pearl Mussel Projects as the project team was appointed in May 2018. The project is currently looking for expressions of interest.

It is clear that no impacts or results will be observable yet. However, Indecon notes the importance of this approach to addressing environmental and structural issues in Irish agriculture and in the rural economy. However, it is clear that at this stage, the main expenditure has been on getting these EIPs set up rather than undertaking the various activities that they will do.

**Submeasure 16.3: Collaborative Farming**

The submeasure on collaborative farming is aimed to address very important structural, economic, and social challenges faced by Irish agriculture through collaborative approaches to farming. These involve inter-farm arrangement, intra-farm arrangements, share farming and contract rearing in order to mitigate problems such as poor land availability and farm size, work/life balance issues, the development of skills sets and the knowledge base, and intergenerational transfers. The scheme is expected to encourage formation of new partnerships by contributing to the legal, advisory and financial services costs of farmers during the process of their farm partnership agreement.

The focus areas/CEQs addressed by the submeasure are as follows:

- FA2A: Improving the economic performance of all farms and facilitating farm restructuring and modernisation; and
- FA2B: Facilitating the entry of adequately skilled farmers into the agricultural sector.

The support under Collaborative farming is in order of 50% of the administrative costs involved in establishing a new Farm Partnership arrangement. The partnership arrangements need to be newly formed and existing Milk Production Partnership who wish to continue are not eligible for support. The maximum support available under this submeasure is €2,500.[94] The public spending made at the end of 2018 under this submeasure is around €0.24 million and €0.80 million for focus areas 2A and 2B respectively. This represents almost 32% of the spending of the total target of €0.75 million for focus area 2A and 36% of the total target of €2.25 million for focus area 2B (see Table 7.38).

**Table 7.38: RDP Funding Input for Collaborative Farming**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure - FA2A (€ Millions) | 0.10 | 0.11 | 0.03 | 0.24 | 0.75 |
| Total Public Expenditure - FA2B (€ Millions) | 0.31 | 0.33 | 0.15 | 0.80 | 2.25 |

***Source: Indecon Analysis of DAFM Indicator Data.***

A total of 783 collaborative projects have been supported by this submeasure by the end of 2018. Of this, 178 operations were related to the economic performance of the farms (FA2A), whereas 605 operations were in relation to the entry of adequately skilled famers in agricultural sector (FA2B).

[94] Summary of Rural Development Programme Ireland 2014-2020 (September, 2017). Retrieved from: https://www.agriculture.gov.ie/media/migration/ruralenvironment/ruraldevelopment/ruraldevelopmentprogramme2014-2020/RDPSummaryBookletWebVersion110917.pdf

| Table 7.39: RDP Output for Collaborative Farming (FA2A & FA2B) | | | |
|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** |
| No. of co-operation operations supported (FA2A) | 82 | 78 | 18 |
| No. of co-operation operations supported (FA2B) | 246 | 248 | 111 |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | |

**Impact of Measure 16.3 (Collaborative farming)**

The overall expenditure on this measure is modest with only around €1 million spent between 2014-2018. The objectives of M16.3 are focussed on supporting generational renewal. However, the overall budget and the uptake so far are likely to have minimal impact on achieving these objectives. For example, we estimate that only around 0.5% of farms in Ireland availed of this scheme. Indecon believes that generational renewal is a key challenge for Irish agriculture.

## 7.7 Summary of findings

- In terms of the relationship between receipt of KT support and farm output, productivity and CAP impact indicators, the counterfactual analysis could not be conducted due to a small number of observations and only one period of data. However, the simple FE results (implying correlations) suggest a positive association between the receipt of KT support and farm output, agricultural entrepreneurial income, and agricultural factor income. Further analysis is however required to derive any definitive conclusions on the impact of this measure.
- An important aspect of Measure 2.3 (Training for advisors) is the setting up of the infrastructure to deal with animal health issues through the RDP. The BVD results indicate a 91% reduction in the number of positive cases reported from 2013 to 2018.
- The other aspect of agricultural competitiveness is captured through investment in physical assets. TAMS II under Measure 4 encourages capital investment in agriculture and so far, €129 million have been spent as part of TAMS I (and AEOS NPIs) and TAMS II at the end of 2018. This includes RDP inputs to the Dairy Equipment Scheme, Young Farmer's Capital Investment Scheme, Animal Welfare and Farm Safety Scheme, Farm Nutrient Storage, Pig and Poultry Investment and Low Emission Slurry Spreading.
- The counterfactual analysis for TAMS II does not suggest any significant impact on farm output or productivity to date. However, increasing the sample size by including the capital investment in previous rounds of RDP leads to results that confirm a positive impact of capital grants on farm output and productivity. Our analysis indicates that farms supported by capital investment schemes such as TAMS typically increases output by 7% and productivity by 6%.
- Measure 14.1 targets focus area 3A, which is related to improving the competitiveness of primary producers through sheep welfare. The total RDP funding made at the end of 2018 is over €33 million with nearly a quarter of million sheep annually and 14% farm holdings supported at the end of 2018.

- Farm competitiveness and environmental sustainability are both targeted through M16: Co-operation. This contributes to large number of focus areas and includes European Innovation Partnership (EIPs)-General, locally-led Hen Harrier and Freshwater Pearl Mussel Project and Environmental and Climate Project, and support for collaborative farming.
- The total funding by the end of 2018 includes €0.1 million for General EIPs, €3.5 million for EIP-Locally led Projects, and over €1 million funding for collaborative farming.

# 8 Evaluation of Impact on Regional Development

The third overall objective of the RDP is to "Achieve a balanced regional development of rural economies and communities." This is mainly undertaken through support for the LEADER programme and falls under Priority 6 of the RDP. This priority area has three focus areas but only Focus Area 6b is applicable to the Irish RDP. In this section, we review the LEADER programme and consider whether it has or is likely to achieve its key objectives.

## 8.1 Measure 19, Measure 19.1-19.4: Support for LEADER Community Led Local Development (CLLD)

**Background of LEADER-CLLD**

The LEADER element of RDP is administered by the Department of Rural and Community Development (DRCD) and has been a critical arm of RDP since its inception in the 1990s. LEADER has been an effective tool in facilitating the economic and social development of rural communities and businesses, and ensures that participation in the decision-making at the local level is made through Local Action Groups (LAGs) and Local Development Strategy (LDS). The LAG model has evolved under the current Rural Development Programme so that most Local Action Groups are now Local Community Development Committees (LCDCs) established under the Local Government Reform Act 2014. The LCDCs work in partnership with Local Development Companies which deliver most of the actions on their behalf and the Local Authorities which provide financial oversight.Thus, LAGS and their implementating partners work in partnership with the ultimate LEADER beneficiaries to deliever various LEADER funded projects.

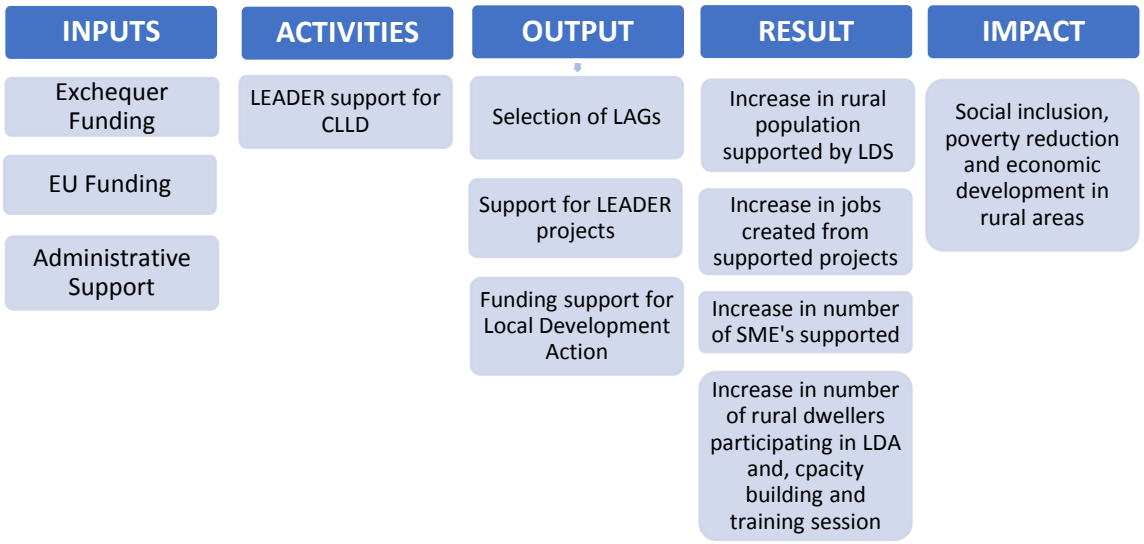
The LAGs make decisions based on LDS by determining the need in the local area and what investment might be best suited to address those needs. It is expected that this kind of bottom-up approach will lead to a more integrated and coherent approach to local development which involves community and local government organisations in leadership roles.

The RDP in Ireland is aimed to include 28 sub-regional areas under the LEADER programme and the following themes emerged for the development of the Local Development Strategies:

- Rural Economic Development/Enterprise Development and Job Creation, incorporating Rural Tourism, Enterprise Development, Broadband, Rural Towns.
- 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.

The LEADER-CLLD addresses the CEQ under FA6B, which relates to fostering local development in rural areas. The PLM for LEADER-CLLD is shown in Figure 8.1. It should also be noted that the wider impact of RDP on regional development was discussed in the chapter dealing with Programme wide impacts. This showed the positive impacts of RDP on rural employment and reduction in rural poverty.

**Figure 8.1: Programme Logic Model – Measure 19**




*Source: Indecon*

The LEADER programme (Measure 19) is quite unique in terms of its objectives and it only impact impacts on priority six and does not have much cross-over with the rest of the RDP.

**Input and Activities of LEADER-CLLD**

The LAGs for LEADER have six months to develop and submit an LDS as part of the selection process. The selection process allows many proposals for LDSs in a given sub-regional area. However, in order to support a targeted approach to local and rural development, the primary aim under LEADER is to facilitate one LDS in every sub-regional level. In cases where more than one LDS emerges for a sub-regional area, the available funding for that area will be shared. Table 8.1 shows that the total public funding allocated for LEADER is just over €36 million at the end of 2018. The LAG's themselves have suggested as part of their annual reporting process that approximately 80% of the project budget will be allocated by the end of 2019, with the remainder to be allocated in 2020.

**Table 8.1: RDP Funding Input for LEADER-CLLD (FA6B)**

| Indicators | 2014-2016 | 2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|---|
| Total Public Expenditure- Preparatory Support (€ Millions) | 1.13 | 0.18 | 0.0 | 1.31 | 0.70 |
| Total Public Expenditure- Implementation Operations (€ Millions) | 0.0 | 0.66 | 11.8 | 12.51 | 194.4 |
| Total Public Expenditure- Preparation and Co-operation (€ Millions) | 0.0 | 0.0 | 0.003 | 0.003 | 10.0 |
| Total Public Expenditure- Animation and Running Costs (€ Millions) | 0.84 | 11.1 | 10.4 | 22.3 | 45.0 |
| ***Total Public Expenditure (€ Millions)*** | ***2.0*** | ***11.9*** | ***22.2*** | ***36.1*** | ***250.0*** |

*Source: Indecon Analysis of DAFM Indicator Data.*

### Output of LEADER

A total of 29 LAGs were supported by RDP LEADER by the end of 2018 spanning across a population of over three million. The project promotors for LEADER are mainly NGOs and SME (See Table 8.2).

**Table 8.2: RDP Output for LEADER (FA6B)**

| Indicators | 2014-2016 | 2014-2017 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| Population covered by LAG | 2,334,442 | 3,082,317 | 3,082,317 | 2,470,308 |
| Number of people trained on Training projects | | N/A | 231 | |
| No. of LAGs supported | 28 | 29 | 29 | |
| No. of co-operation projects supported | 0 | 0 | 0 | |
| No. of LEADER projects supported | 0 | 34 | 506 | |
| ***Type of Project Promotors*** | | | | |
| LEADER Groups | 0.0 | 1.0 | 12.0 | |
| NGOs | 0.0 | 23.0 | 286.0 | |
| Others | 0.0 | 0.0 | 39.0 | |
| Public bodies | 0.0 | 0.0 | 0.0 | |
| SMEs | 0.0 | 10.0 | 140.0 | |

***Note: Some LEADER also contributed to FA1A and FA6B***
***Source: Indecon Analysis of DAFM Indicator Data.***

### Result of LEADER-CLLD

The target indicators for M19 LEADER are shown in Table 8.3. Over 600 FTE jobs were sustained by the LEADER at the end 2018 with a total of 231 training activities. Amongst other impacts, it is noted that over 0.35 million visitors benefitted from the rural tourism projects supported by LEADER and over 0.3 million people availed basic services in hard-to-reach communities. Lastly, a total of 6,648 young people participated in the Rural Youth Project supported by LEADER.

**Table 8.3: RDP Target Indicators for M19 (FA6B)**

| Indicators | 2017 | 2018 | 2017-2018 |
|---|---|---|---|
| T21 - % of rural pop covered by LDSs | 1.5 | 180.4 | 181.9 |
| Number of Existing Jobs Sustained (FTE) | 14.7 | 589.74 | 604.44 |
| Number of Jobs created in supported projects (Male) | 1 | 115 | 116 |
| Number of Jobs created in supported projects (Female) | 0.5 | 65 | 65.5 |
| Population benefitting from improved services | 12,053 | 642,525 | 654,578 |
| Number of people trained on Training projects | N/A | 231 | 231 |
| Number of visitors benefitting from Rural Tourism projects | 5,376 | 349,073 | 354,449 |
| Number of people availing of basic services for hard to reach communities | 6,082 | 299,431 | 305,513 |
| Number of young people participating in Rural Youth Projects | N/A | 6,648 | 6,648 |

***Source: Indecon Analysis of DAFM/DRCD Indicator Data.***

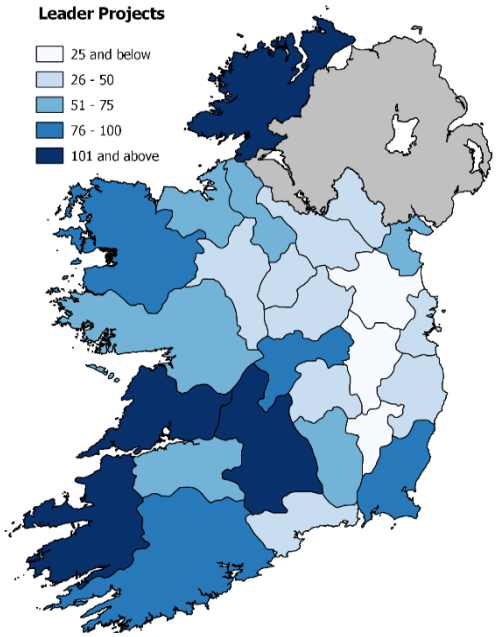
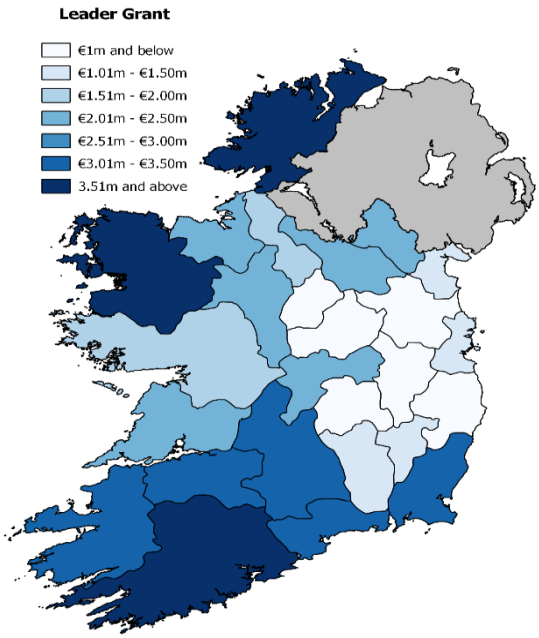
Across different sub-themes for LEADER projects, Table 8.4 suggests that the highest share of funding is held by the sub-theme related to basic services for hard to reach communities. In addition to this, projects related rural tourism, enterprise development, and rural towns form substantial part of LEADER projects and funding. Projects in rural tourism were typically relatively small in budgetary terms. Enterprise development and basic services typically have significantly higher average project cost.

**Table 8.4: Analysis of Projects, by sub-theme (End-2018)**

| Sub-Themes | Share of Total Funding (%) | No. of Projects | Avg. Project Cost (€) |
|---|---|---|---|
| Rural Tourism | 17.3% | 434 | 42,761 |
| Enterprise Development | 22.2% | 309 | 80,983 |
| Rural Towns | 10.7% | 226 | 39,808 |
| Rural Youth | 7.2% | 104 | 55,483 |
| Basic Services for hard to reach communities | 38.6% | 459 | 71,602 |
| Water Resources | 0.5% | 15 | 22,075 |
| Local Biodiversity | 1.8% | 45 | 27,195 |
| Renewable Energy | 1.5% | 18 | 97,622 |
| Broadband | 0.2% | 16 | 10,502 |
| ***Source: Indecon analysis of DRCD data*** | | | |

Figure 8.2 shows distribution of LEADER grants and projects in Ireland. There is a strong correlation of distribution of grants and total number of projects being positively proportional to each other. The LEADER projects dominate North-West and South-West regions, while the funding amounts are concentrated in West, North-West and South-West regions.

**Figure 8.2: Regional Analysis of LEADER (based on data as end 2018)**

| No. of LEADER projects by county | Total value (€million) of LEADER projects by county |
|---|---|
|  |  |



***Source: Indecon analysis of DRCD data***

Indecon's analysis shows that the western and southern parts of the country operated more LEADER projects and received more funding as compared to other regions. This includes counties such as Donegal, Mayo, Kerry, Limerick, Westford, etc. having LEADER grants more than €3 million each with a maximum of €4.4 million received by Donegal, followed by Mayo receiving €4 million. In total, the total grants received were over €55 million.[95]

[95] This refers to the total grant approved which may not have all been drawdown and paid by the end of 2018.

| Table 8.5: Analysis of LEADER funding by LDS | | | |
|---|---|---|---|
| **LDS** | **Total Project Cost (€m)** | **LEADER Grant Amount (€m)** | **% LEADER grant** |
| Carlow LDS | 1.8m | 1.2m | 67.3% |
| Cavan LDS | 4.2m | 2.2m | 53.9% |
| Clare LDS | 3.8m | 2.1m | 54.7% |
| Cork North LDS | 3.4m | 1.9m | 57.0% |
| Cork South LDS | 1.1m | 0.6m | 55.5% |
| Cork West LDS | 1.4m | 1.0m | 73.4% |
| Donegal LDS | 7.4m | 4.4m | 59.3% |
| Dublin Rural LDS | 2.7m | 1.3m | 50.9% |
| Galway East LDS | 2.3m | 1.5m | 63.4% |
| Galway West LDS | 0.6m | 0.4m | 59.9% |
| Kerry LDS | 4.9m | 3.2m | 65.9% |
| Kildare LDS | 1.0m | 0.7m | 70.8% |
| Kilkenny LDS | 2.9m | 1.5m | 51.0% |
| Laois LDS | 1.6m | 0.9m | 57.9% |
| Leitrim LDS | 3.1m | 1.8m | 58.3% |
| Limerick LDS | 4.3m | 3.1m | 72.4% |
| Longford LDS | 1.9m | 1.0m | 50.7% |
| Louth LDS | 1.8m | 1.2m | 67.4% |
| Mayo LDS | 7.0m | 4.0m | 56.5% |
| Meath LDS | 1.8m | 1.0m | 54.4% |
| Monaghan LDS | 3.2m | 2.1m | 66.7% |
| Offaly LDS | 4.0m | 2.3m | 59.0% |
| Roscommon LDS | 3.5m | 2.2m | 62.0% |
| Sligo LDS | 3.3m | 2.3m | 69.0% |
| Tipperary LDS | 5.2m | 3.1m | 59.4% |
| Waterford LDS | 8.0m | 3.1m | 38.7% |
| Westmeath LDS | 1.1m | 0.8m | 72.1% |
| Wexford LDS | 6.1m | 3.4m | 55.7% |
| Wicklow LDS | 1.5m | 1.0m | 61.4% |
| Total | 94.9m | 55.3m | 58.3% |
| ***Source: Indecon analysis of DRCD data*** | | | |

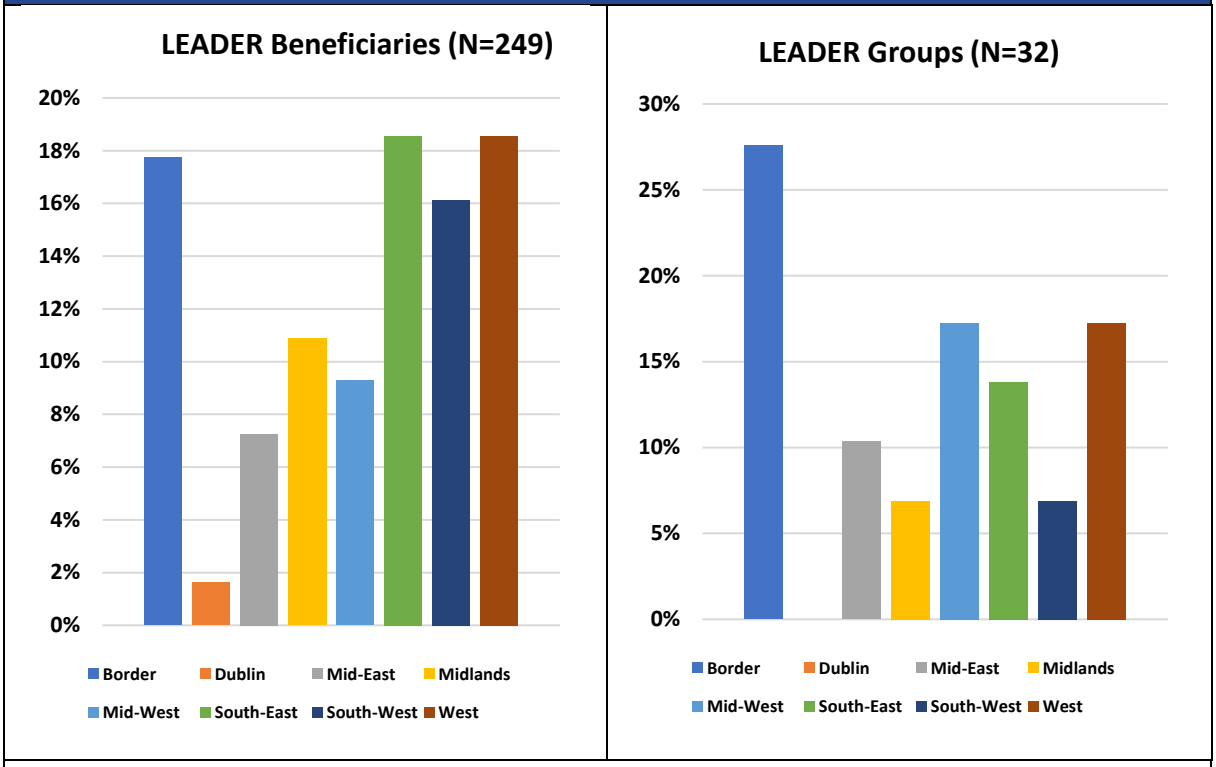
The LEADER grants of €55.3 million represents 58.3% of the total LEADER project costs which are estimated at just under €95 million. The share of total private funding[96] received by LEADER projects is around 39% and the remaining 2% is sourced from other public funding agencies. The leverage effect of LEADER for acquiring other private and public funding is highest for Waterford LDS which received 61% of private funding in addition to €3.1 million worth of LEADER grants. This leverage effect was also high for Dublin Rural LDS, Longford LDS, Cavan LDS and Wexford LDS, each of them receiving over 40% of private funding in addition to the LEADER grant.

[96] The amount of private funding leveraged is mainly determined by whether the applicant is a private promoter (eligible for 50% grant aid max) or a community group (eligible for 75%/95% grant aid max)

| Table 8.6: Analysis of LEADER funding by LDS (Leverage effects) | | | |
|---|---|---|---|
| **LDS** | **% LEADER funding** | **% Private Funding** | **% Other Public funding** |
| Carlow LDS | 67.3% | 26.2% | 4.2% |
| Cavan LDS | 53.9% | 44.0% | 0.3% |
| Clare LDS | 54.7% | 42.2% | 3.1% |
| Cork North LDS | 57.0% | 39.3% | 3.2% |
| Cork South LDS | 55.5% | 38.7% | 5.7% |
| Cork West LDS | 73.4% | 23.1% | 3.2% |
| Donegal LDS | 59.3% | 36.2% | 4.0% |
| Dublin Rural LDS | 50.9% | 49.1% | 0.0% |
| Galway East LDS | 63.4% | 35.4% | 0.0% |
| Galway West LDS | 59.9% | 40.1% | 0.0% |
| Kerry LDS | 65.9% | 32.2% | 0.9% |
| Kildare LDS | 70.8% | 28.9% | 0.3% |
| Kilkenny LDS | 51.0% | 40.4% | 8.7% |
| Laois LDS | 57.9% | 41.5% | 0.6% |
| Leitrim LDS | 58.3% | 37.7% | 3.2% |
| Limerick LDS | 72.4% | 25.9% | 0.4% |
| Longford LDS | 50.7% | 48.7% | 0.0% |
| Louth LDS | 67.4% | 29.4% | 3.3% |
| Mayo LDS | 56.5% | 40.9% | 0.8% |
| Meath LDS | 54.4% | 42.8% | 2.9% |
| Monaghan LDS | 66.7% | 30.3% | 0.0% |
| Offaly LDS | 59.0% | 38.2% | 2.8% |
| Roscommon LDS | 62.0% | 32.5% | 5.1% |
| Sligo LDS | 69.0% | 30.9% | 0.1% |
| Tipperary LDS | 59.4% | 35.7% | 3.6% |
| Waterford LDS | 38.7% | 60.9% | 0.0% |
| Westmeath LDS | 72.1% | 21.5% | 6.4% |
| Wexford LDS | 55.7% | 44.0% | 0.3% |
| Wicklow LDS | 61.4% | 38.3% | 0.1% |
| **Total** | **58.3%** | **39.0%** | **2.0%** |
| ***Source: Indecon analysis of DRCD data*** | | | |

Indecon undertook surveys that included beneficiaries of LEADER grants and LEADER groups. In total 249 responses were obtained from LEADER beneficiaries while the LEADER groups survey yielded 32 responses. Figure 8.3 shows the regional distribution of the respondents and it can be inferred that majority beneficiary responses were retrieved from Border, South-East and West, while most of the LEADER group responses were recorded from the Border, Mid-West and Western regions of Ireland.

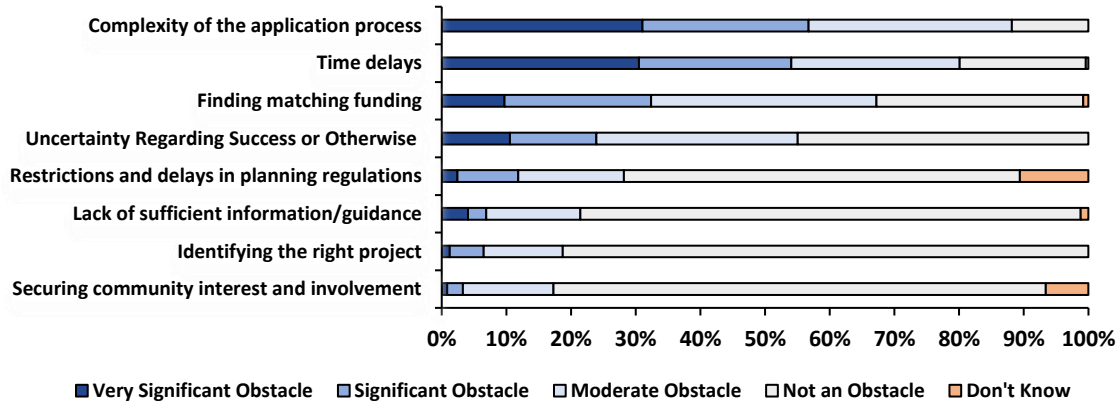
**Figure 8.3: Regional Distribution of Respondents in LEADER Survey**




*Source: Indecon survey*

The results in Figure 8.4 indicate positive views on aspects of the programme but some obstacles regarding the general application process.

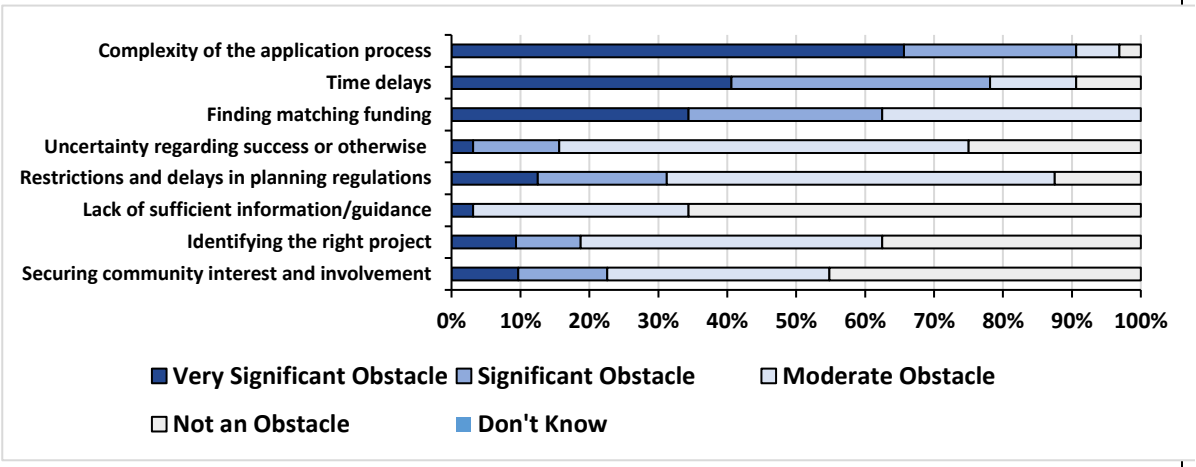
**Figure 8.4: Beneficiary Rating for Obstacles faced during LEADER Application Process**




*Source: Indecon survey*

Figure 8.4 presents views from the LEADER groups, as shown in Figure 8.5. The ranking of obstacles across the two surveys is consistent and highlights aspects of the complexity of the application process for obtaining the LEADER support. However, Indecon notes that significant changes have been made to the administrative process.

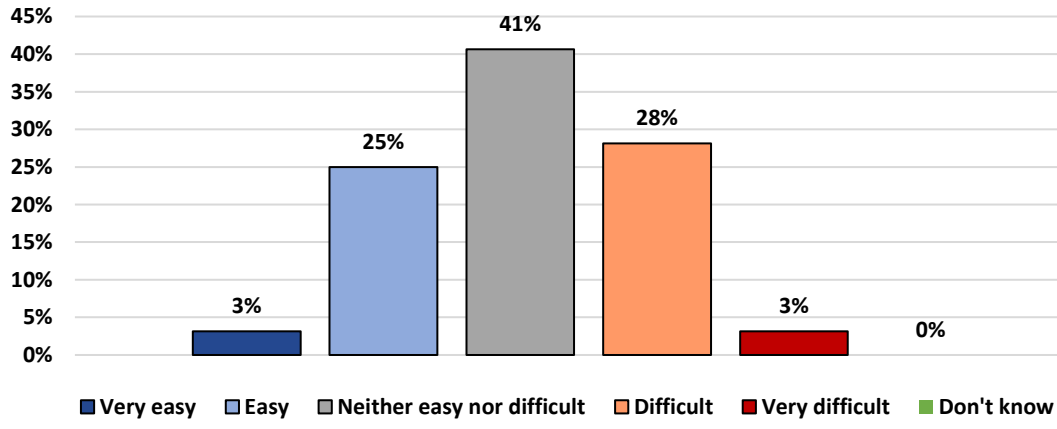
**Figure 8.5: LEADER Groups Views on Obstacles faced during Application Process**




*Source: Indecon survey*

Moreover, with respect to the ability of LEADER to attract good quality, well-developed grant applications in the community, the responses from the LEADER groups suggests mixed views with around 31% of LEADER groups reporting it was very difficult/difficult to attract good quality projects (see Figure 8.6).

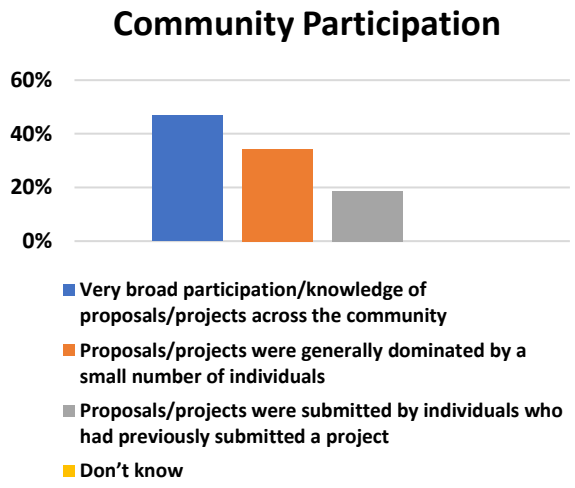
**Figure 8.6: Rating for Ease of Attracting Well-developed Grants in the Community**

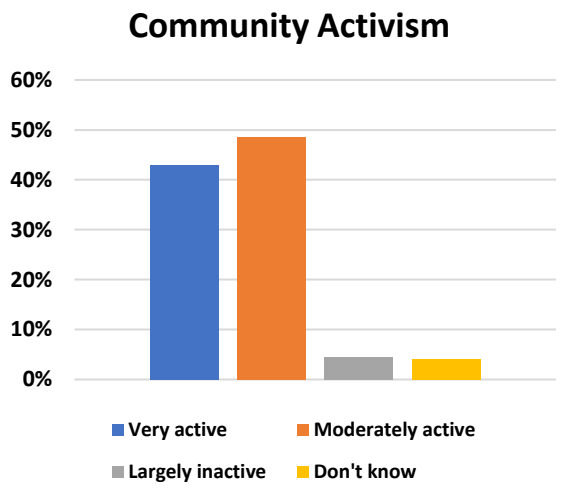



*Source: Indecon survey*

The community participation in development of LEADER proposals is informed from the LEADER group survey and responses suggests that the community had very broad participation and knowledge in the process of developing project proposals. Moreover, a sizeable proportion of the LEADER beneficiaries assess community activism in their region as very active to moderately active (see Figure 8.7).

**Figure 8.7: Community Activism and Participation of Community in Proposal Development**




*Source: Indecon survey*

### Impacts of LEADER

In terms of alternative funding views, 77% of LEADER beneficiaries suggested that they would have not been able to secure alternative funding without the LEADER support (see table below). The analysis highlights the importance of LEADER as a funding source.

**Table 8.7: View for Securing Alternate Funding without LEADER**

| Response | Total | Percentage |
|---|---|---|
| Yes, the same amount | 4 | 2% |
| Yes, lower amount | 14 | 6% |
| Yes, but at later date | 14 | 6% |
| No | 191 | 77% |
| Don't know | 26 | 10% |
| ***Total*** | ***249*** | ***100%*** |

*Source: Indecon survey*

The LEADER groups' views regarding whether such a group would have been set up without LEADER funding are shown in below. The majority of LEADER groups (63%) report that setting up of a similar group without RDP support was unlikely/very unlikely (see Table 8.8).

| Table 8.8: Ease of setting up LEADER without RDP Funding | | |
|---|---|---|
| **Response** | **Total** | **Percentage** |
| Very likely | 7 | 22% |
| Somewhat likely | 1 | 3% |
| Neither likely nor unlikely | 2 | 6% |
| Unlikely | 6 | 19% |
| Very unlikely | 14 | 44% |
| Don't know | 2 | 6% |
| ***Total*** | ***32*** | ***100%*** |
| ***Source: Indecon survey*** | | |

## 8.2 Discussion of the Impact of LEADER

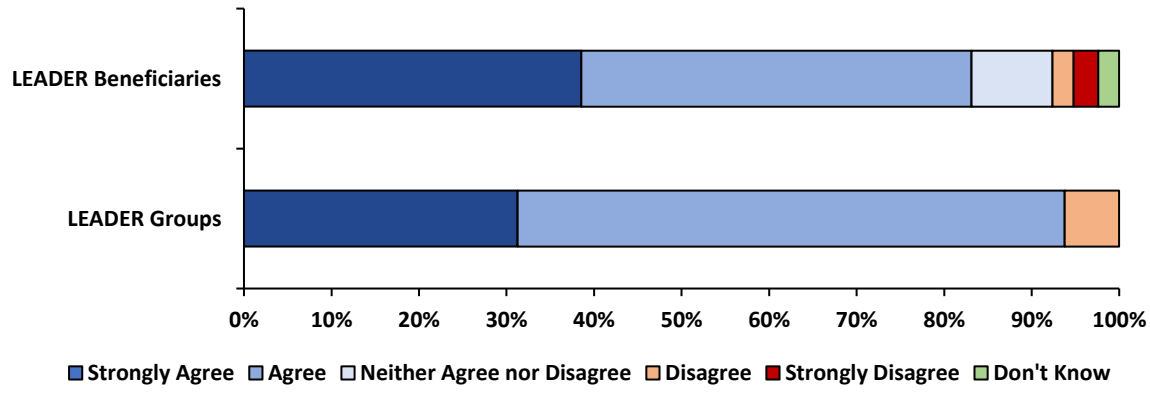
The 2014-2020 RDP model of the LEADER has changed somewhat since previous model. The Department of Rural and Community Development ('DRCD') is the delegated Paying Agency for LEADER. The main change relates to the administrative structure that underpins LEADER. LAGs are now typically Local Community Development Committees (LCDC) with the local development companies as implementing partners and local authority as lead financial partner with the financial oversight of LEADER projects.

It is difficult to consider the overall effectiveness of the LEADER programme at this stage of the programme as very few LEADER projects had been awarded prior to 2018. Take-up has increased significantly in 2018.

## 8.3 Wider Impacts of the RDP on Balanced Regional Development of Rural communities

An important aspect of the RDP is how it promotes rural life and the rural economy. Survey evidence indicates that over 90% of LEADER beneficiaries believe that LEADER helps to promote rural life.

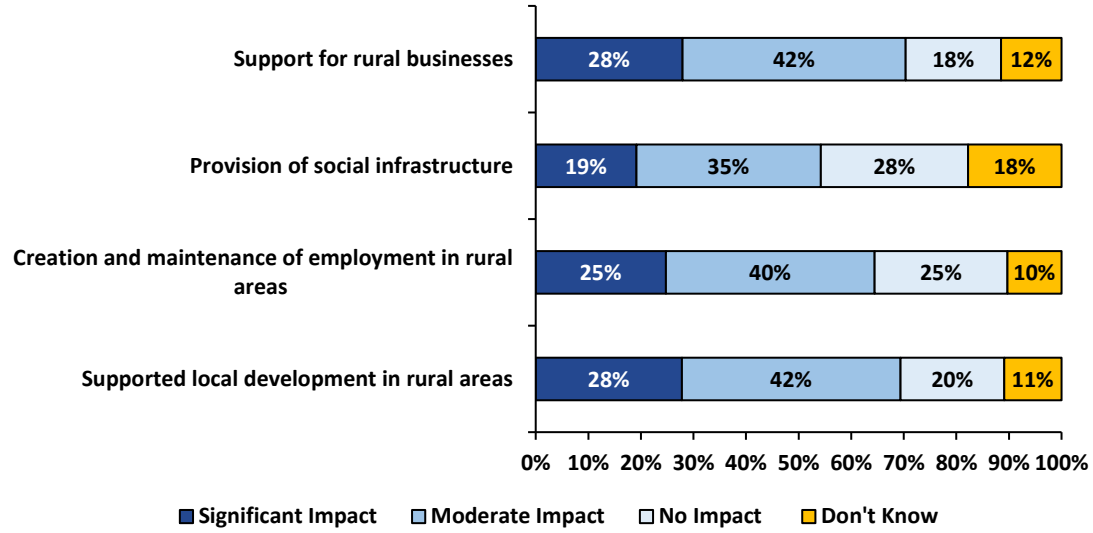
**Figure 8.8: Views regarding LEADER achievement of promoting Rural Life**




*Source: Indecon survey*

The wider rural economy is supported by other measures apart from LEADER through direct and indirect links to farmer beneficiaries. The survey results indicate that farmer believe that the RDP is having a positive impact on the rural economy. These findings are consistent with quantitative modelling undertaken by Indecon.

**Figure 8.9: Views on Impact of RDP in Promoting the Rural Economy**




*Source: Indecon survey*

## 8.4 Summary of findings

- The RDP had an objective of promoting balanced regional development and as well as measures to maintain overall employment and farm viability in rural areas. This was supported through the implementation of Measure 19 (LEADER). The initial overall allocation for this measure was €250 million between 2014-2020, which represents around 6% of the overall RDP allocation. At the end of 2018, the expenditure on this measure was just over €36 million. It is likely that this will increase in 2019 and 2020 as a number of projects have been approved since 2018.
- Survey evidence indicated that 77% of LEADER beneficiaries believed that they would have not been able to secure alternative funding without the LEADER support.
- Overall, LEADER had a slow start in the early years of the RDP but has shown significant progress in terms of supporting projects in 2018. The LAG's themselves have indicated as part of their annual reporting process that approximately 80% of the project budget will be allocated by the end of 2019, with the remainder to be allocated in 2020. However, it must be noted that given the nature of most LEADER projects, there is a significant time period between the approval of a LEADER project and when funding is drawn down.

# 9 Conclusions and Recommendations

## 9.1 Conclusions

At the end of 2018, approximately 57% of the overall RDP allocation was spent. The allocation of RDP 2014-2020 funding was highest in Measure 13 (Payment to areas facing natural constraints or other specific constraints), followed by GLAS under Measure 10 (Agri-environment and climate), and TAMS II under Measure 4 (Investment in physical assets). The levels of expenditure as at the end of 2018 indicate that while good progress has been made on spend there are a number of measures where spend is significantly below the expected levels. While expenditure is expected to increase significantly in 2019 and 2020, it is important that where targets are unlikely to be met, that funds are reallocated. Indecon understands however that the Department expects that overall spend for the entire programme will be greater than the original allocation. Any carry-over would need to be funded from the next programming period 2021-2027.

**Programme-Level Impact of RDP on the Rural Economy in Ireland**

A number of different economic models have been employed to analyse the wider programme-level impacts of the RDP expenditure. These include a Bio-Economy Input-Output model and a Two-Region Input-Output model of the Irish economy. The supply-side impacts of RDP support were also examined by Indecon as part of this evaluation. If we assume that the expected level of expenditure is all spent by the end of the programme, we estimate that there will €3,217 million in direct and indirect impacts. If we include induced impacts, this figure rises to €3,629 million.

Using survey evidence, Indecon has estimated that around 86% of the direct and indirect benefit of RDP expenditure is within 35 km of the RDP beneficiaries thereby primarily benefitting the rural economy. Our estimates using an input-output model suggest that the expenditure impacts of RDP are likely to result in approximately 4,881 jobs nationally, of which 4,178 are estimated to be in the rural economy. The RDP is also likely to have had positive supply-side impacts, but these will only be evident after a time lag. The rural expenditure and employment impacts at the end of the Programme will be greater than estimated at this stage of implementation

Indecon's analysis also highlights the increase in rural employment rate, the decline in rural poverty and the increase in rural GDP since the start of the RDP. The comparison with national data however demonstrates the scale of challenge faced by RDP. While the overall employment rate in rural areas increased, not all of this can be attributed to the RDP.

Training to support some of the significant agri-environment schemes (GLAS and BDGP) was implemented in the early stages of the 2014-2020 RDP. This training was a requirement for participation in these schemes. GLAS replaced the previous AEOS scheme and is the main agri-environmental measure of the RDP.

Statistical analysis, using the National Farm Survey, indicates that GLAS beneficiaries typically have lower income, have less capital investment and lower livestock units than non-GLAS participants. Indecon's counterfactual econometric analysis indicates that GLAS is likely to have a small positive impact on farm incomes. Analysis indicates that the spatial distribution of GLAS beneficiaries is very much in line with the Special Areas of Conservation (SACs) and Special Protected Areas (SPAs); predominantly in the western, north-western, and south-western regions of Ireland.

Survey evidence[97] suggests that GLAS has achieved a number of key benefits including maintaining hedgerows, increasing biodiversity on farms and improving water quality. Evidence collected at the farm level by ADAS indicates that over 75% of required actions were completed. The survey results for 2017 indicate that most of the intended measures of success witnessed positive change. However, exceptions to this were Riparian Margins, Twite, Traditional Dry-stone wall, Conservation of Solitary bees, and Protection of water-courses from Bovines. The findings from the ADAS biodiversity report indicated that around 66% of sites were deemed to have outcomes that could not be achieved without GLAS support. 88% of farms had implemented actions appropriately with no missed opportunities.

Modelling undertaken by ADAS on the environmental impact of GLAS on water quality and pollutants suggests that GLAS will lead to a long-term annual reduction of between 5-9% for nitrate, phosphorus, nitrous oxide and methane on GLAS supported farms. The overall national impact is smaller as 32% of farmland is in GLAS. Recent data from EPA for 2017 indicate that while ammonia emissions have increased reflecting the increase in agricultural production, the emissions per unit of output decreased over this period. ADAS concludes that the major cause of these reductions is likely to be the Low Input Permanent Pasture action (and the comparable Natura Habitat and Farmland Bird actions). This action has the highest level of uptake.

The Beef Data and Genomics Programme (BDGP) requires beneficiaries 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 such as reduced Green House Gas emissions. This scheme will take a number of years before impacts are measurable. This is due to replacement rates in the herd and non-BDGP herds. It is therefore not possible in this interim report to make a definitive conclusion on the success or otherwise of the BDGP at this stage. However, preliminary evidence indicates that BDGP cows are calving at younger ages which is consistent with the objectives of the BDGP scheme. The mechanism in the BDGP payments are based on the level of stock recorded in the reference year ensures that there is no incentive for recipients to increase herd size. The analysis also shows that the number of cows moving from lower rated to higher rated is higher for BDGP herds than non-BDGP herds. Based on analysis by the ICBF on differences in cow weight, calf wean weight and calving, it is estimated that higher rated cows are likely to have lower $CO_2$ emissions by around 6% per animal. It must also be noted the types of farms that are typically in receipt of BDGP support are in the western half of the country where the land quality is poorer. It is also likely that many of the farmers who receive BDGP also receive GLAS and ANC support. This is important in terms of sustained environmental improvement and the links between BDGP and GLAS are important in this context.

The largest measure (in public funding terms) in the RDP is Measure 13 (ANC). This support is received by over 70% of active farmer beneficiaries. This support is provided to farm holdings who face natural disadvantages in their farmland. One of the rationales for this support is the public good value of maintaining agricultural land. New survey evidence suggests that around 27% of ANC supported farms would have become abandoned without this support. Indecon believes that it is likely that farmers interpreted this to mean to all payments rather than just the impact of ANC. Thus, this figure may be an overestimate of the impact of ANC on land abandonment. Based on survey evidence, it also likely that a very small minority of 7% of the farms would have had to be sold or taken over by a family member without this support. In order to examine the public good aspect of the support, Indecon surveyed farmer beneficiaries on the public good type features that exist on their farms. The

[97] This is based on the survey undertaken by ADAS who are conducting an evaluation of GLAS.

results indicate that of ANC farmer beneficiaries, 62% of farms have physical landscape features (stone walls, old farm buildings etc.); 58% have landscape features such as lakes and rivers; 29% have cultural heritage features; and 12% have walking trails used by the public. These features are likely to have a value for society and ensuring that they are protected should remain an important feature of the RDP. While there is a large range in the estimates for the monetary value of public goods, international evidence provides some indicative estimates of the landscape value which is around €120 per hectare supported per year. Based on applying this value the indicative estimate of the landscape value generated by RDP from 2014-2020 is around €285 million per annum. Our analysis indicates that ANC supports are an important source of income for farms that are significantly below the average farm income. The payments to ANC supported farms are based on costs incurred and income foregone and do not include a premium for such a landscape value.

The OFS has a budget of €56 million over the 2014-2020 RDP. The target for the RDP was to attract some 16,000 hectares of new land into production and to support 46,000 hectares of converted land. These targets were achieved in 2016. The scheme was re-opened in November 2018 and received over 200 applications. At the end of 2018, around 42% of this budget has been spent supporting around 1,368 holdings. As these are long-term contracts, this expenditure will increase during the rest of the programme to support the maintenance of these organic holdings. The most recent result indicators show that around 2.7% of the total land area is being maintained as organic. In the period 2014-2018, the total new organic land is estimated to be around 1.2% of the total land area which suggests progress is being made.

**Review of Competitiveness-related Priority Areas**

In terms of the relationship between receipt of the KT payment and farm output and productivity, a counterfactual analysis is not feasible due to the small number of observations in the National Farm Survey and only one time period of data. However, the sample fixed effects results of new econometric analysis undertaken by Indecon (implying correlations) suggest a potential positive association between the receipt of the KT payment and farm output and agricultural incomes. Our survey evidence also indicates that 57% of beneficiaries suggested they would not have participated in a knowledge transfer group without the RDP support. This suggests that relatively low levels of deadweight. This survey also indicated that the scheme has positive impacts on risk prevention, agricultural competitiveness, creating a knowledge base in rural areas and agri-environmental issues.

The largest measure directly relating to enhancing the competitiveness of agriculture is TAMS II which involves investment in physical assets. Indicator data shows that €129 million have been spent as part of TAMS I and TAMS II at the end of 2018.[98] TAMS II involves grant support for a number of different schemes including the Dairy Equipment Scheme, Young Farmer's Capital Investment Scheme, Animal Welfare Safety and Nutrient Storage scheme, Pig and Poultry Investment and Low Emission Slurry Spending. It is noted that the capital investment support under Measure 4 includes support for measures to help improve the environmental impact of the farm. Indecon would expect that the impacts of this investment will only be seen over time. This is consistent with the results of our econometric counterfactual modelling of TAMS II which does not indicate any significant impact to date on farm output or productivity. However, new econometric counterfactual modelling which Indecon has completed and which includes the capital investment in previous rounds of RDP leads to results that confirm a positive impact of capital grants on farm output and productivity. The results are presented in the next table. A positive impact of a capital investment grant on farm output and

[98] This amount includes €15.81 million for non-productive investments under AEOS from previous RDP.

productivity is found. This is measured by the treatment impact, namely ATET.[99] The estimates of impact from our counterfactual econometric models suggests a positive impact on output on from 6 – 7% and an increase in productivity of the order of 5 – 6%. For example, in interpreting the results it is useful to consider the results of one of our key econometric models, namely the propensity score matching model. This is an econometric model which attempts to measure the impact of the RDP TAMS II[100] investment on farms, compared to similar farms who did not make the investment. The results indicate an impact on output measured by ATET of 0.0686 which suggests a 6.86% increase in output compared to what would have occurred without TAMS II investment.

Overall, our modelling and analysis suggests that the RDP support will contribute to enhancing the competitiveness of agriculture. This enhancement of competitiveness is likely to be mainly through capital investment measures. Indecon analysis has also found that the Knowledge Transfer Groups are likely to have a small positive impact on competitiveness but it is difficult to quantify the impacts at this stage of the Programme.

**Review of Balanced Regional Development**

The RDP had an objective of promoting balanced regional development and as well as measures to maintain overall employment and farm viability in rural areas. This was supported through the implementation of Measure 19 (LEADER). The initial overall allocation for this measure was €250 million between 2014-2020, which represents around 6% of the overall RDP allocation. At the end of 2018, the expenditure on this measure was just over €36 million. However, it should be noted that the expected project spend, as outlined in the milestones developed for LEADER, was 16% at the end of 2018 (around €40 million). It is likely that this will increase in 2019 and 2020 as a large number of projects have been approved since 2018.

While the overall RDP has impacted on regional development and employment in rural areas it is also useful to examine LEADER where the structure has changed in the current programme. The LAG model has evolved under the current RDP so that most Local Action Groups are now Local Community Development Committees (LCDCs) established under the Local Government Reform Act 2014 although the Local Development Companies are responsible for the direct implementation of the programme. The regional distribution of LEADER grants and projects in Ireland shows the number of LEADER projects is largest in the north-west and south-west regions, while the funding amounts are concentrated in the west, north-west and south-west regions.

The current LEADER operates in a very different environment to the previous RDP. This has likely had an impact of the number of viable projects available to fund through LEADER. Indecon believes that the 31 actions points to reduce administrative burden outlined as part of the LEADER forum in May 2017 are welcome but monitoring of these actions should be undertaken. Our survey of LEADER Groups indicated that around 31% indicated that it was difficult or very difficult to attract good proposals. In terms of alternative funding, 77% of LEADER beneficiaries believed that they would have not been able to secure alternative funding without the LEADER support.

Overall, LEADER had a slow start in the early years of the RDP but has shown significant progress in terms of supporting projects in 2018. It is not clear at this stage if the full allocation of the LEADER funding will be spent by the end of the RDP but Indecon note that spending is permitted until the end

[99] Average Treatment Effect on the Treated is the estimate of the net impact of the grant on the beneficiaries compared to the non-beneficiaries.

[100] We note that capital investment grants have been part of different schemes during previous RDPs. The analysis above relates to capital investment grants.

of 2023. The LAG's have suggested as part of their annual reporting process that approximately 80% of the project budget will be allocated by the end of 2019, with the reminder to be allocated in 2020. However, it must be noted that given the nature of most LEADER projects, there is a significant time period between the approval of a LEADER project and when funding is drawn down.

**Overall conclusions**

This mid-term evaluation suggests that the RDP has performed well against its various key targets. Indecon note there are some competing objectives between different measures. For example, ANC is likely to reduce the likelihood of farm abandonment and this may be in conflict with other objectives relating to environmental management. Similarly, measures which maintain existing low income farms could work against structural reforms in terms of the transfer of land to younger farmers. TAMS investment may also increase output which may have negative environment impacts. Although, this is likely in part to be offset by the specific environmental aspects of TAMS II. The 2014-2020 RDP has introduced a number of new measures that have helped address some of the structural issues in Irish agriculture. At this stage, around 57% of the overall allocation has been spent. It must also be noted that this is a mid-term evaluation and some of the overall impacts of the RDP are not fully observable yet.

## 9.2 Recommendations

There are a number of wider policy issues which have developed since the start of the Programme including the recent Climate Action Plan. This is likely to have a significant impact on the next CAP Strategic Plan. A number of recommendations which aim to maximise the impact of the RDP and to highlight issues of relevance for the design of the next programme are outlined below in Table 9.1.

**Table 9.1 Recommendations.**

| | Recommended Action(s) | Suggested Responsibility | Relevant Programme |
|---|---|---|---|
| Protecting the rural environment | **1. Ensure priority is given to supporting environmental improvements in Irish agriculture.**<br>**2. Expand measures to support Organic Farming.**<br>**3. Ensure that there is no gap in support for any successor environmental schemes to GLAS.** | DAFM | Next |
| Improving the competitiveness of Irish farms | **4. Address the structural issues within Irish farming.**<br>**5. Continue to support EIPs.** | DAFM | Next |
| Supporting rural communities | **6. Monitor the effectiveness of new action points to reduce administrative burden on LEADER.** | DRCD | Both |
| Expenditure | **7. Areas where there is likely to be underspend should be identified by the end 2019.**<br>**8. Where underspend is likely funding should be reallocated.** | DAFM | Current |
| Design and administration | **9. Use the existing infrastructure in the design of the next scheme and avoid implementation of new small-scale schemes.**<br>**10. Continue to improve the indicators to facilitate RDP evaluations.** | DAFM | Next<br><br>Both |

1. **Ensure priority is given to supporting environmental improvements in Irish agriculture**

Since the RDP was introduced, Ireland has become the second country in the world to declare a climate and biodiversity emergency. Effective climate actions require that all sectors of the economy, including agriculture, make the adjustments needed. Projects supported by the RDP as well as other initiatives within individual farms, suggest the potential for significant improvements. Measures to deliver significant progress to enhance environmental improvements should be a core focus of the next RDP. Indecon believes that targeted support to farmers in areas of natural constraints is appropriate and should continue to be part of an increased emphasis on environmental improvements. However, additional supports to enhance environmental impacts are required. In terms of climate proofing the RDP, Indecon believes that in designing the next programme the competition between schemes for land-use and opportunities to enhance climate action either through mitigation or adaption or synergies between mitigation and adaption. There may also be merit having specific GHG reduction targets (including carbon pool protection and enhancement targets) to underpin climate objectives. Indecon would also note the importance of training at a very early stage of any future environmental schemes.

2. **Expand measures to support organic farming**

Indecon's analysis suggests that Irish agriculture has a very small percentage of farms which are organic. There has however been progress made through the RDP and more progress is likely through the re-opening of the OFS in 2018. Indecon recommends that consideration is given to an expanded programme of measures to support organic farming in the next programme. Indecon however accepts that the RDP has met key targets in this area and supporting organic farming is a wider policy issue.

3. **Ensure that there is no transitional gap in agri-environment schemes during programming periods**

It is important that environment schemes have continuity and that beneficiaries maintain progress over a long period. During the 2014-2018 period, some farmers who finished their environmental scheme were not able to join GLAS as the scheme was closed to new entrants and they may not have been able to switch earlier due to commitments on land leases. In order to overcome this, in the next Programme famers should be given the option to transition into new schemes when their current scheme ends. This is consistent with Indecon's assessment that there is potential for enhanced environmental improvements and supported by RDP. In designing the next programme, the level of cut-off payments should be reviewed to incentivise additional progress.

4. **Address the structural issues within Irish farming**

The high average age of farmers in Ireland continues to represent a major structural risk to Irish farming. The current RDP supports generational renewal through TAMS II (Young Farmer's Capital Investment Grant) and through measures to support collaborative farming. Indecon recommends that the next programme increase the level of expenditure allocated to generational renewal. While Indecon notes that there are other policies outside of RDP to promote generational renewal, ways of supporting structural change in Irish farming should be continued to be given focus in the next Programme. The success of the Irish Government's agri-taxation measures to support long-term leasing is an indication of what can be achieved with appropriate initiatives. As well as enhancing competitiveness a younger and more diverse farm successor including greater gender diversity will help bring new ideas and assist in environmental benefits. This was pointed out to Indecon as part of the consultation programme.

**5. Continue to support EIPs**

European Innovation Partnerships are a welcome new feature of the 2014-2020 RDP. These have taken a number of years to become fully functional and the results will only become observable in 2019 and beyond. Indecon, however, believes that this approach should be maintained in the next programme. EIPs represents an innovative way of overcoming the various challenges facing the agriculture sector in particular in relation to climate and biodiversity issues. These groups also facilitate getting collaboration between various stakeholders and assist in developing best practice approaches to different agricultural challenges. At this stage, it is not possible to formally evaluate the effectiveness of the EIPs but such an evaluation should consider the administration costs associated with the operation of the EIPs.

**6. Monitor the effectiveness of new action points to reduce burden on LEADER**

Indecon notes that there were 31 different actions to reduce the administrative burden of LEADER introduced in 2017. Indecon recommends that monitoring of the impact of these actions is undertaken. The focus should be on facilitating the generation of additional quality projects

**7. Areas where there is likely to be underspend should be identified by end of 2019**

A forensic examination of any areas where spend is below the expected levels should be completed. Realistic evidence-based forecasts for overall Programme spend by measure should be completed by end of 2019. Indecon note that there is unlikely to underspend in the overall RDP but certain measures within the RDP may not spend their initial allocation.

**8. Where underspend is likely funding should be reallocated**

In line with the approach taken by the managing authority to date, where underspend is likely, funding should be reallocated. The RDP is a vital support to the viability of Ireland's rural economy. While other policy initiatives are needed to assist those in rural areas not benefitting from the recovery, it is also essential that all of the RDP funds are fully utilised. There may also be merit in considering adjustments to eligible expenditure where there are concerns over whether the full allocation on measures will be spent.

Any inclusion of additional items should take account of the need to prioritise initiatives to enhance environmental objectives including climate change and biodiversity. In this context it was suggested to Indecon during the consultation programme that there is merit in including solar panels as eligible spend within TAMS. This has since occurred in the latest TAMS call (March 2019).

**9. Use the existing infrastructure in the design of the next programme and avoid implementation of small-scale schemes**

Significant investment has been made in updating IT systems during the 2014-2020 period. These updates have been very valuable but have impacted on the rollout of certain schemes. This was particularly relevant to TAMS II which was delayed due to the installation of a new system which allowed for online applications. Since this system has been operational, the application process for

TAMS II has been improved significantly. Indecon recommends that the introduction of any new scheme should be cognisant of existing infrastructure that has been developed during the 2014-2020 RDP. In the next programming, the Managing Authority should avoid, where possible, introducing small schemes unless they can be managed effectively with existing administrative infrastructure. However, Indecon accepts that there may be a rationale for the introduction of new schemes to address structural weaknesses of Irish agriculture and to achieve environmental objectives.

**10. Continue to improve the indicators to facilitate RDP evaluations**

During the current programme, there have been resources invested in improving the evidence base in terms of measuring the impact of RDP support. Such evidence gathering should be continued in the next programme. This should be focused on measuring the environmental impact and other key objectives of the Programme. This will assist policymakers to ensure that scarce national and EU resources are effectively utilised. One approach that may be adopted to help improve this is to collect key information on environment and other aspects at the application stage.

# Annex 1 Summary of Impacts on Evaluation Questions

**Note: More detailed evidence is included in individual chapters**

| Focus Areas | Common Evaluation Questions |
|---|---|
| FA 1A | 1. To what extent have RDP interventions supported innovation, cooperation and the development of the knowledge base in rural areas? |

The RDP makes a number of contributions to Focus Areas 1A and 1C. Indecon analysis of the wider impact of the RDP on the key Knowledge Transfer and Innovation outcomes indicates that over 70% of RDP farmers suggested that the RDP had an impact on strengthening of the link between research, innovation and agriculture innovation, supporting lifelong agricultural learning and vocational training and innovation, co-operation and knowledge base expansion in rural areas. There are also likely to be some impacts relating to the European Innovation Partnerships (EIPs). However, these EIPs are at an early stage of implementation and no impact is observable as yet and formal counterfactual modelling is not feasible.

Also of note is that training was a requirement for participation in GLAS and BDGP. Over 49,000 beneficiaries received training on Agri-Environmental practices through GLAS and nearly 24,000 received formal training in support of the Beef (BDGP) scheme. Over 17,000 beneficiaries also partook in formal knowledge transfer groups.

| RDP Target Indicators for M1 | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| % of expenditure on Measures addressing Focus Area 1A | 1.73% | 4.92% | 2.60% | 3.6% |
| T3 - No. of participants trained under Measure 1, including KT, BDGP & GLAS. | 67,689 | 24,909 | 92,598 | 111,600 |
| ***Source: Indecon Analysis of DAFM Indicator Data*** | | | | |

The RDP supported significant increase in the knowledge base through formal knowledge transfer groups and through GLAS and BDGP training. These training support are important in the implementation of the agri-environmental schemes. Indicative analysis suggests a potential positive association between the receipt of the KT payment and farm output and agricultural incomes. Survey evidence also indicates that 57% of beneficiaries suggested they would not have participated in a knowledge transfer group without the RDP support. This survey also indicated that the scheme has positive impacts on risk prevention, agricultural competitiveness, creating a knowledge base in rural areas and agri-environmental issues.

In terms of the relationship between receipt of KT support and farm output, productivity and CAP impact indicators, the counterfactual analysis could not be conducted due to a small number of observations and only one period of data. However, the simple FE results (implying correlations) suggest a positive association between the receipt of KT support and farm output, agricultural entrepreneurial income, and agricultural factor income. Further analysis is however required to derive any definitive conclusions on the impact of this measure.

| | |
|---|---|
| FA 1B | 2. 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? |
| At this stage of the programme, it is not possible to provide any evidence of the impact of the RDP on this focus area. This focus area may be addressed by the European Innovation Partnerships. Any impacts will only be observable when the EIPs are fully operational. | |
| FA 1C | 3. To what extent have RDP interventions supported lifelong learning and vocational training in the agriculture and forestry sectors? |
| The commentary for FA1C is the same as per FA1A. | |
| FA 2A | 4. 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 2A is addressed in the RDP through Knowledge Transfer Groups, CPD for Advisors, TAMS and the EIPs. As discussed under FA1A, Knowledge Transfer groups appear to have had a positive impact on key agricultural outcomes. However, this will need to be examined further as more longitudinal data on the scheme becomes available.

Our analysis suggest that a key aspect of agricultural competitiveness is through investment in physical assets. TAMS II under Measure 4 encourages capital investment in agriculture and so far, €129 million have been spent as part of TAMS I (and AEOS NPIs) and TAMS II at the end of 2018. This includes RDP inputs to the Dairy Equipment Scheme, Young Farmer's Capital Investment Scheme, Animal Welfare, Safety and Nutrient Storage Scheme (AWS), Pig and Poultry Investment scheme and Low Emission Slurry Spreading.

Counterfactual econometric analysis for TAMS II suggests that if one includes the capital investment in previous rounds of RDPs the results confirm a positive impact of capital grants on farm output and productivity. Our analysis indicates that farms supported by capital investment schemes such as TAMS typically increases output by 7% and productivity by 6%. While impact on farm output and productivity of investments in 2015-2017 are not evident to date, they are likely to impact on future output and productivity.

**Impact of TAMS II on Output and Productivity (2001-2017)**

| Econometric Estimation Model | Outcomes Variables | ATET |
|---|---|---|
| **Regression Adjustment Model (RA)** | Log Output | 0.0728***<br>(0.0111) |
| | Log Productivity | 0.0546***<br>(0.0130) |
| **Propensity Score Matching** | Log Output | 0.0686**<br>(0.0304) |
| | Log Productivity | 0.0665***<br>(0.0246) |

Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1
**Analysis on NFS Data.**

The impact of TAMS II is also captured by farmer responses with regards to the outcomes that would have followed if the TAMS II grant was unavailable. The responses suggest that 39% of farmers believed that the project would have not gone ahead if the funding support was unavailable. Only 13% indicated that the project would have gone ahead if the funding support was unavailable. While the results suggest some level

of deadweight, they also indicate that the support was a factor for many recipients in proceeding with the investments.

| FA 2B | 5. To what extent have RDP interventions supported the entry of adequately skilled farmers into the agricultural sector and in particular, generational renewal? |
|---|---|

The Young Farmer Capital Investment Scheme (YFCIS) is one measure of TAMS II. This provides incentives to young farmers for upgrading the agricultural infrastructure. There is also support for generational renewal through measure 16 Collaboration.

| RDP Output for TAMS (II and I) | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| ***Young Farmer's Capital Investment (FA2B)*** | | | | | |
| No. of supported operations | 59 | 514 | 1,172 | 1,745 | |
| No. of Holdings Supported | 59 | 514 | 1,048 | 1,621 | 4,000 |
| ***No. of TAMS Beneficiaries*** | ***3,040*** | ***2,191*** | ***4,540*** | ***9,771*** | |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | | |

The TAMS scheme offers young farmers a 60% capital investment grant, up to a maximum of €80,000 per holding, but is only available for the first five years of setting up in farming.
The higher rate of capital grant (60% instead of 40%) is a key incentive which encourages farm families to engage in the process of transfer to the younger generation. For many sheep and beef farmers, returns are low and most need second jobs to provide a steady income. Competition from availability of jobs in other sectors with higher and more reliable incomes means that few young people are attracted to farming. Young farmer beneficiaries are mostly undertaking basic investments and upgrading machinery and buildings (e.g. fencing, milk storage, new milking parlour). The focus is largely on reducing costs (e.g. labour) and improving quality (and price) of the product: this is particularly the case in the dairy sector where there has been a focus on improved productivity.

| RDP Output for Collaborative Farming (FA2A) | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **Planned Output 2023** |
| No. of co-operation operations supported (FA2A) | 82 | 78 | 18 | |
| No. of co-operation operations supported (FA2B) | 246 | 248 | 111 | |
| ***Source: Indecon Analysis of DAFM Indicator Data.*** | | | | |

The overall expenditure on this measure is modest with only around €1 million spent between 2014-2018. The objectives of M16.3 are focussed on supporting generational renewal. The size of the budget and the uptake so far of these measures are likely to have had minimal impact on achieving these objectives. For example, we estimate that only around 0.5% of farms in Ireland availed of this scheme. Indecon believes that generational renewal is a key challenge for Irish agriculture.

| | |
|---|---|
| FA 3A | 6. To what extent have RDP interventions contributed to improving the competitiveness of supported primary producers by better integrating them into the agri-food chain through quality schemes, adding value to agricultural products, promoting local markets and short supply circuits, producer groups and inter-branch organization |

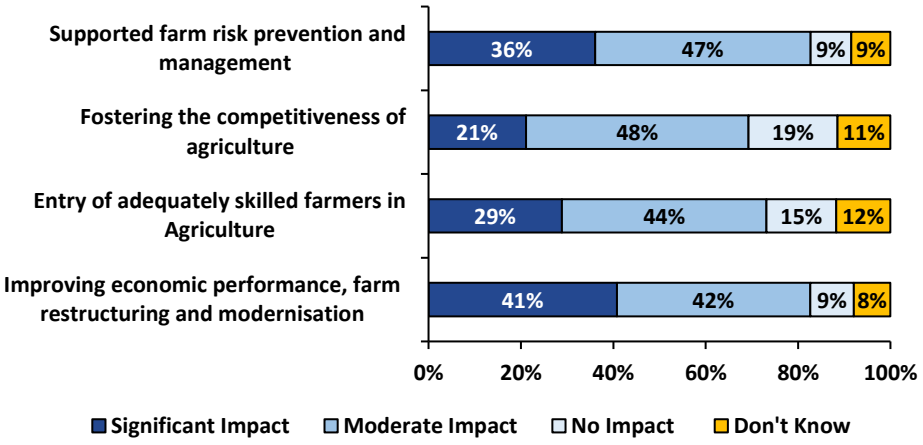
As part of the RDP, around €0.3 was allocated to supporting beef producer groups. As of end 2018, these producer groups have not been formed.

There is also some support through measure 14 (Animal Welfare Scheme) and the General EIPs. Overall, it is not possible at the this stage of the programme to quantify the impact of the RDP on FA3A

| | |
|---|---|
| FA 3B | 7. To what extent have RDP interventions supported farm risk prevention and management? |

There was no specific RDP measure that directly addressed risk prevention. However, Knowledge Transfer and the EIPs are likely to impact on this issue. Survey evidence indicated that the KT group scheme has had positive impacts on risk prevention. This survey suggests over 80% of respondents believe the support had a significant to moderate impact on increasing the knowledge of farm risk prevention and management. Survey evidence also suggested an impact from TAMS II on improvement in safety and reduced risk.

**Wider Impact of RDP on Farm Risk Prevention on Management**




***Source: Survey analysis***

| | |
|---|---|
| FA 4A | 8. 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? |

The largest measure (in public funding terms) in the RDP is Measure 13 (ANC). This support is received by over 70% of active farmer beneficiaries. This support is provided to farm holdings who face natural disadvantages in their farmland. One of the rationales for this support is the public good value of maintaining agricultural land. New survey evidence suggests that around 27% of ANC supported farms may have become abandoned without this support. Based on survey evidence, it also likely that some of the farms would have had to be sold or taken over by a family member without this support. It is clear that ANC supports are an important source of income for farms that are significantly below the average farm income. While there is a large range in the estimates for the monetary value of public goods, international evidence provides some indicative estimates of the landscape value which is around €120 per hectare supported per year. Based on applying this value the indicative estimate of the landscape value generated by RDP from 2014-2020 is around €285 million per annum. Our analysis indicates that ANC supports are an important source of income

for farms that are significantly below the average farm income. The RDP also supports HNV farming through the Burren Programme. So far, 304 farmers have been supported through the Burren Programme by the end of 2018 with total supported area over 11,000 hectares.

Survey evidence undertaken by ADAS suggests that GLAS has achieved a number of key benefits including maintaining hedgerows, increasing biodiversity on farms and improving water quality. Evidence collected at the farm level by ADAS indicates that over 75% of required actions were completed. The findings from the ADAS biodiversity report indicated that around 66% of sites were deemed to have outcomes that could not be achieved without GLAS support. 88% of farms had implemented actions appropriately with no missed opportunities. As discussed under FA1A, GLAS implementation was also assisted by providing training to GLAS participants early in the RDP.

FA4A is also supported through the Animal Welfare, Safety and Nutrient Storage Scheme (AWS) which supports investment in nutrient storage.

| FA 4B | 9. To what extent have RDP interventions supported the improvement of water management, including fertilizer and pesticide management? |
|---|---|

The main schemes of the RDP that contributed to this focus area were training provided under Measure 1, GLAS, Organic farming scheme and the EIPs.

It is likely that the RDP will reach its target with regard to the number of farm holdings under water management contracts. This is likely to lead to an improvement in water management. This improvement is likely to be underpinning by training provided to GLAS participants.

| RDP Support for Water Management Contracts | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| T10- % of holdings under water management contracts | 18.40% | 2.00% | 20.4% | 20.91% |
| T12- % of holdings under soil management contracts | 16.39% | 1.91% | 18.3% | 18.08% |
| ***Source: DAFM Indicator Data.*** | | | | |

Around 90% of GLAS participants indicated that the scheme had likely either fully or partially led to an improvement in water quality. A wider survey of RDP beneficiaries suggests that 85% believe that the RDP has had a significant or moderate impact on improving water management including fertiliser management on farms.

The overall impacts of GLAS, as modelled by ADAS, suggests a long-term annual reduction in the range of 5-9% for nitrate, phosphorus, nitrous oxide, and methane. This analysis was produced at the Water Framework Directive waterbody scale level.

| FA 4C | 10. To what extent have RDP interventions supported the prevention of soil erosion and improvement of soil management? |
|---|---|

The Target indicators specified for the number of holdings under soil management contract are shown below. This shows that very good progress has been achieved and overall targets for soil management contracts

have been exceeded. The target for the RDP was to attract some 16,000 hectares of new land into production and to support 47,000 hectares of converted land. These targets were achieved in 2016.

| RDP Target Indicators for Organic Farming Scheme (P4) | | | | |
|---|---|---|---|---|
| **Indicators** | **2014-2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| T12- % of holdings under soil management contracts* | 16.39% | 1.91% | 18.3% | 18.08% |
| ***Note:* While the area under OFS contributes to each of these targets, GLAS is the preponderant contributor in each case. The OFS is contributes accounts for around 5% of these targets*** | | | | |
| ***Source: DAFM indicator data*** | | | | |

The scheme was re-opened in November 2018 and received over 200 applications. At the end of 2018, around 42% of this budget has been spent supporting around 1,368 holdings. As these are long-term contracts, this expenditure will increase during the rest of the programme to support the maintenance of these organic holdings.

The most recent result indicators show that around 2.7% of the total land area is being maintained as organic. Indecon notes that the actual targets set in the RDP to have 18% of holdings under soil management contracts have been exceeded. Analysis of farmer beneficiaries who received the OFS in 2016 and 2017 indicates that these farmers are typically younger, have lower levels of livestock and use significantly less fertilizers in their production process. It is not possible at the stage to examine the impacts of the OFS on key outcome variables as there are not sufficient observations in the survey data.

GLAS is largest scheme in the RDP that targets the objectives of the FA4C. The impacts of GLAS have been discussed in FA4A. Supports under Measure 1 were also likely to have a positive impact on soil management. The impact of these supports has been outlined previously with relation to FA1A.

| FA 5A | 11. To what extent have RDP interventions contributed to increasing efficiency in water use by agriculture? |
|---|---|

At this stage, there is no evidence available on the impact on water use. The EIPs may make a positive contribution to addressing this focus area when they are fully operational.

| FA 5B | 12. To what extent have RDP interventions contributed to increasing efficiency in energy use in agriculture and food processing? |
|---|---|

Most of this focus area is related to the expenditure under TAMS II. However, the impacts so far are likely to be small considering the focus of TAMS II so far in the RDP. However, in 2019, there has been an explicit TAMS II call for energy efficiency products such as solar photovoltaic.

There is also some support for energy intensive farming sectors such as Pigs and Poultry and Tillage as part of TAMS. The latest update as of end 2018 is shown below.

| TAMS support under FA5B | | | | | |
|---|---|---|---|---|---|
| **Indicators** | **2014-2016** | **2017** | **2018** | **2014-2018** | **Planned Output 2023** |
| ***Pigs and Poultry Investment/ Tillage Capital Investment Scheme (FA5B)*** | | | | | |
| Total Public Expenditure -TAMS II (€ Millions) | 0.01 | 0.44 | 2.17 | 2.62 | 20.00 |
| ***Source: DAFM Indicator Data.*** | | | | | |

| | |
|---|---|
| Overall, the RDP at this stage is likely to have a relatively small impact on FA5B at this stage of the programme. | |
| | |
| FA 5C | 13. To what extent have RDP interventions contributed to increasing the supply and use of renewable sources of energy; of by-products, wastes, residues, and other non-food raw material for purposes of the bio-economy? |
| At this stage, it is not possible to answer this. The EIPs may make a positive contribution to addressing this focus area when they are fully operational. | |
| FA 5D | 14. To what extent have RDP interventions contributed to reducing GHG and ammonia emissions from agriculture? |
| Nationally, the percentage of agricultural land managed by farmers in GLAS is 32%. Modelling undertaken by ADAS on the environment impact of GLAS on water quality and pollutants suggests that GLAS will lead to a long-term annual reduction of between 5-9% for nitrate, phosphorus, nitrous oxide and methane. ADAS concludes that the major cause of these reductions is likely to be the Low Input Permanent Pasture action (and the comparable Natura Habitat and Farmland Bird actions). This action has the highest level of uptake. Further background material on this is included in the ADAS modelling report.<br><br>As part of our analysis we also attempted some preliminary modelling which accounts for the different control characteristics that influence both the selection into GLAS and the ultimate GHG emission impact. This analysis suggests that farms in receipt of the GLAS payment have lower GHG emissions. Similarly, econometric analysis also indicates that farms in receipt of the GLAS payment also have lower ammonia emissions.<br><br>In terms of GHG emissions, the impact of BDGP has yet to be comprehensively quantified. Based on 2018 uptake levels of 580,000 BDGP cows, it is estimated that by 2030 there would be a cumulative 1.6 Mt reduction in CO2 equivalent on 2015 levels – which equates to a marginal abatement potential of around 11%. This is due to cumulative benefits which will lead to the current top 1% of cattle (in terms of efficiency and star-rating) becoming the norm by 2030. However, it is important that these findings are monitored on a regular basis. It must also be noted that these potential savings are a relatively small share of the overall environmental emissions from agriculture which in 2017 accounted for around 20 Mt of CO2 equivalent. It is clear that beef is only one component of agriculture that contributes to GHG emissions.<br><br>There are also likely to be some impacts relating to capital investment supported under TAMS II. | |
| FA 5E | 15. To what extent have RDP interventions supported carbon conservation and sequestration in agriculture and forestry? |
| The impact of the RDP on FA5E to date is likely to be through GLAS. However, it is not possible to provide a quantified estimate of the impact of GLAS on FA5E. The most relevant evidence is shown in the table below. This shows the percentage of agricultural and forest land under management to foster conservation. It must be noted that this is very small share of the overall land and Ireland supports the forestry sector outside of the RDP. | |

| RDP Target Indicators | | | |
|---|---|---|---|
| **Indicators** | **2014-2017** | **2014-2018** | **Planned Output 2023** |

| | | | | | |
|---|---|---|---|---|---|
| | T19- % of agricultural and forest land under management to foster carbon conservations | 0.08% | 0.08% | 0.32% | |
| | ***Source: DAFM Indicator Data.*** | | | | |

| FA 6B | 17. To what extent have RDP interventions supported local development in rural areas? |
|---|---|

The RDP had an objective of promoting balanced regional development and as well as measures to maintain overall employment and farm viability in rural areas. As indicated under the analysis on evaluation question 22, the RDP is likely to have a significant impact on development in rural areas and is estimated to result in an expected 4,178 jobs in rural areas annually. This will help support local development these areas.

| Estimated Rural Employment Impacts of RDP Expenditure | | |
|---|---|---|
| | **Employment Annually (National)** | **Employment Annually (Rural Areas)** |
| Employment Impacts | 4,881 | 4,178 |
| ***Source: Indecon Expenditure Impact Assessment Model*** | | |

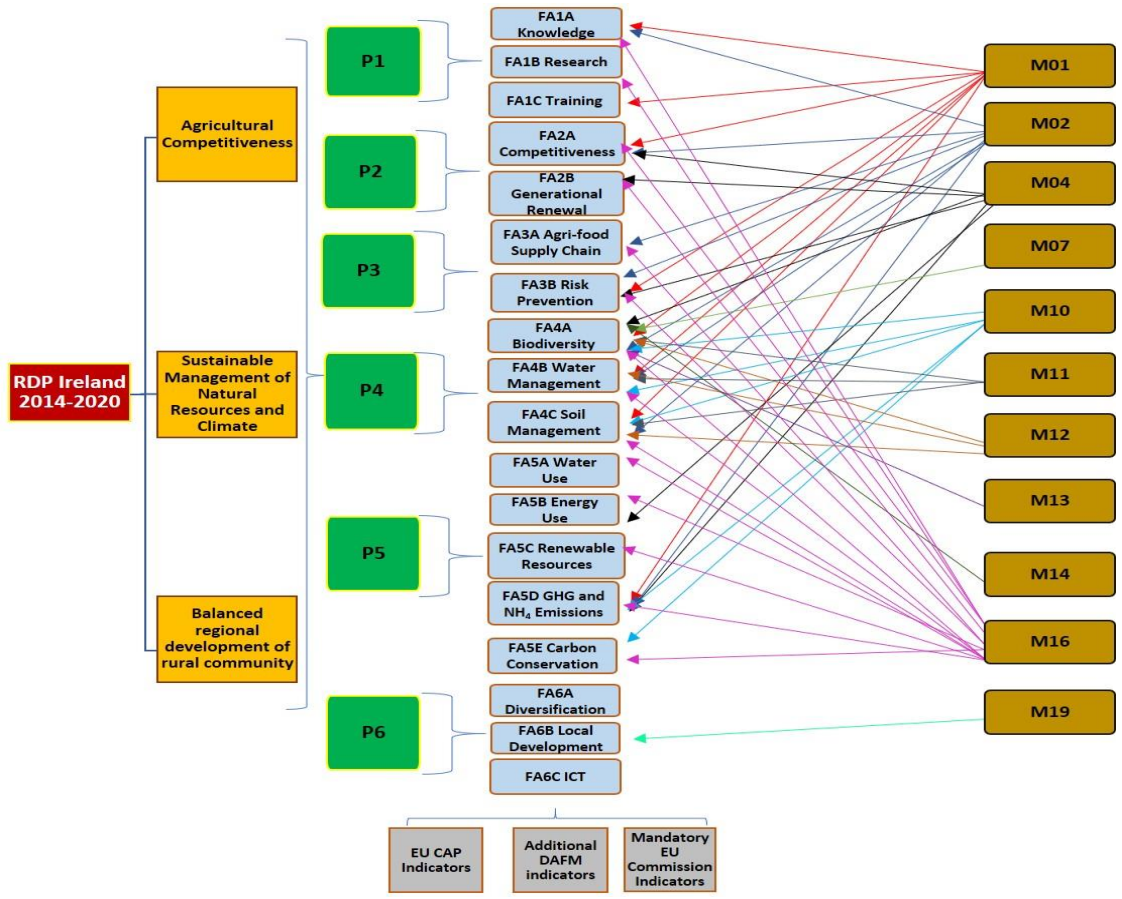
In addition, local development is supported through the implementation of Measure 19 (LEADER). The initial overall allocation for this measure was €250 million between 2014-2020, which represents around 6% of the overall RDP allocation. At the end of 2018, the expenditure on this measure was just over €36 million. It is likely that this will increase in 2019 and 2020 as a number of projects have been approved since 2018. The LAG's themselves have suggested as part of their annual reporting process that approximately 80% of the project budget will be allocated by the end of 2019, with the remainder to be allocated in 2020.

Survey evidence indicated that 77% of LEADER beneficiaries believed that they would have not been able to secure alternative funding without the LEADER support. LEADER had a slow start in the early years of the RDP but it has shown significant progress in terms of supporting projects in 2018.

| RD | 19. To what extent have the synergies among priorities and focus areas enhanced the effectiveness of the RDP? |
|---|---|

The Irish RDP programme delivers support through 11 measures which are further divided into 19 submeasures. The relationship between these measures and their focus areas is illustrated in the graphic below. This shows how certain RDP measures contribute to a number of areas. For example, the on-farm capital investment measure (TAMS II) is targeted at improving the competitiveness of agriculture but it also links to the various agri-environmental related areas of the RDP. The graphic also illustrates the complexity of the Programme and the diversity of focus areas.

**RDP Linkages and Objectives**




***Source: Ireland RDP 2014-2020 Documents and Reports***

There are a number of synergies between different measures and different focus areas. It also clear that both Measure 1 (Knowledge Transfer and Training) and Measure 16 (EIPs) are likely to have impacts across a large number of different focus areas. It is likely that this has significant improved the effectiveness of the RDP especially in terms of environment impacts. Training support is likely to have important for the implementation of both GLAS and BDGP. Knowledge Transfer groups are also likely to have improved outcomes. Finally, support under Measure 4 has offered support for non-productive investments which may not have any significant impacts on agricultural productivity but are likely to increase environmental outcomes. Such investment would be unlikely to have occurred without the support.

| | |
|---|---|
| RD | 20. To what extent has technical assistance contributed to achieving the objectives laid down in Article 59 of Regulation (EU) No 1303/2013 and Article 51(2) of Regulation (EU) No 1305/2013? |

A total of €3.3 million has been spent on the technical assistance recorded under M20. This is 40% of the total target spending of over €8 million. Of the total spending, NRN spending was around €1.26 million at the end of 2018. A consortium led by the Irish Rural Link and supported by The Wheel, NUI Galway and Philip Farrelly and Co. was appointed by the Department of Agriculture, Food and the Marine to run Ireland's NRN.

The current consortium was only appointed in January 2016. This makes a formal evaluation of the effectiveness of the network difficult as many of impacts of the NRN are only likely to emerge in the next few years.

| RD | 21. To what extent has the NRN contributed to achieving the objectives laid down in Article 54(2) of Regulation (EU) No 1305/2013? |
|---|---|

The NRN is particularly important for publicising the European Innovation Partnerships (EIPs) which require a strong network to promote them and attract significant number of participants. The level of expenditure on the NRN so far has been relatively small. The majority of spend occurred in 2017 and 2018 and nearly half of the total expenditure on the NRN was spent in 2018.

The outputs of the NRN include setting up of thematic and analytical exchanges, communication tools such as events, project examples collected and disseminated, publication of leaflets, and number of ENRD activities. At the end of 2018, a total of 34 thematic and analytical exchanges were set up with the support of NRN. Amongst these exchanges, 16 were set up through consultation with stakeholders and 18 through thematic working groups. In terms of communication, 57 events were organised as a result of NRN support and 285 projects were disseminated. There were 52 publications including leaflets, newsletter and magazines. The survey of LEADER groups highlighted the benefits of the NRN to the groups, particularly in retrieving useful information from their website and help in organising networking with other groups, and communicating the benefits of the programme.

Overall, the NRN provides information to both LEADER and farmer beneficiaries. It is an important resource which includes information on the various elements of the RDP. It is likely to be particularly useful in establishing the visibility of measures such as the EIPs. The technical assistance programme is also used to support the evaluation of the Programme. Ensuring that EU and national funds are effectively used is critical given the need to maximise the benefits of scarce resources

| EU | 22. To what extent has the RDP contributed to achieving the EU 2020 headline target of raising the employment rate of the population aged 20 to 64 to at least 75 %? |
|---|---|

Using survey evidence, Indecon has estimated that around 86% of the direct and indirect benefit of RDP expenditure is within 35 km of the RDP beneficiaries thereby primarily benefitting the rural economy. Our estimates using an input-output model suggest that the expenditure impacts of RDP are likely to result in approximately 4,881 jobs nationally, of which 4,178 are estimated to be in the rural economy. More detail on approach use to derive these estimates is included in the main report.

| Estimated Rural Employment Impacts of RDP Expenditure | | |
|---|---|---|
| | **Employment Annually (National)** | **Employment Annually (Rural Areas)** |
| Employment Impacts | 4,881 | 4,178 |
| ***Source: Indecon Expenditure Impact Assessment Model*** | | |

The RDP is also likely to have had positive supply-side impacts, but these will only be evident after a time lag. The rural expenditure and employment impacts at the end of the Programme will be greater than estimated at this stage of implementation.

The figures shown in the next table highlight the increase in the rural employment rate. The comparison with national data however demonstrates the scale of challenge faced by the RDP. While the overall employment rate in rural areas increased, not all of this can be attributed to the RDP.

| Employment Impact of RDP on Rural economy | | |
|---|---|---|
| | **Rural Areas[101]** | **State** |

[101] A rural area is defined by Eurostat is an area where more than 50 % of its population lives in areas that are not identified as urban centres

| Indicators | 2014 | 2018 | 2014 | 2018 |
|---|---|---|---|---|
| Employment Rate | 62.4% | 67.8% | 63.1% | 68.6% |
| Population (15-64) | 1,273,500 | 1,249,100 | 3,061,200 | 3,175,800 |

***refers to 2017 data as this is the latest available***
***Source: Indecon Analysis of Eurostat data***

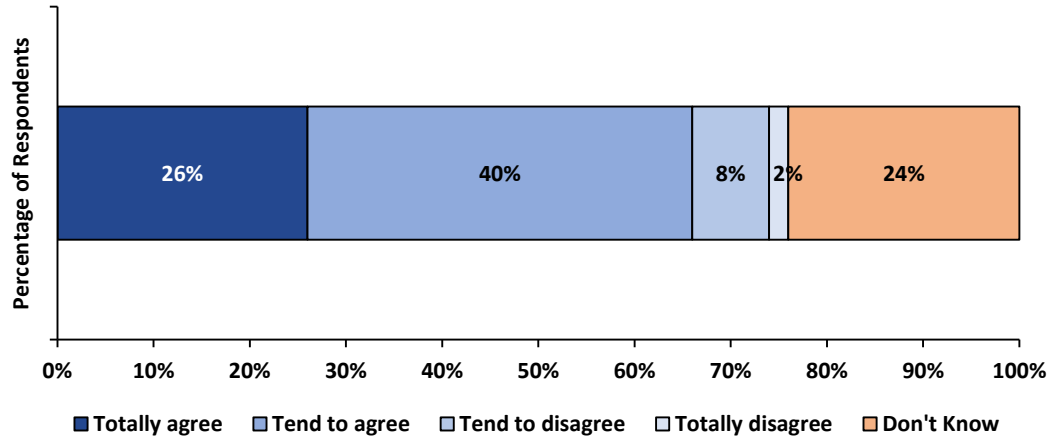
| | |
|---|---|
| EU | 23. To what extent has the RDP contributed to achieving the EU2020 headline target of investing 3 % of EU's GDP in research and development and innovation? |

It has not been feasible to measure the quantified impact during this interim report of to what extent has the RDP contributed to achieving the EU2020 headline target of investing 3% of EU's GDP in research and development and innovation. This is because there is no major R&D measures in the Programme. However it must be noted the RDP contributes to R&D through Measure 16 and Measure 1. The schemes that contribute to these measures are reviewed elsewhere.

| | |
|---|---|
| EU | 24. To what extent has the RDP contributed to climate change mitigation and adaptation and to achieving the EU 2020 headline target of reducing greenhouse gas emissions by at least 20 % compared to 1990 levels, or by 30 % if the conditions are right, to increasing the share of renewable energy in final energy consumption to 20 %, and achieving 20 % increase in energy efficiency? |

A survey of the public suggests that the various agri-environmental measures under the RDP are likely to be having a positive impact on mitigating climate change. This Eurobarometer survey indicates that around 66% of Irish respondents believe that the CAP contributes to the mitigation of climate change.

**Views of Persons Surveyed by Eurobarometer on the Impact of RDP on Mitigating the Impact of Climate Change**




***Source: Eurobarometer 467. (Only including Irish respondents)***
***Original Question: Do you agree or not that the Common Agricultural Policy (CAP) contributes to mitigating the impact of climate change?***

The submeasures under Measure 10 are the main measures that contribute to the agri-environment objectives of the RDP. As part of the stakeholder engagement process, a survey of farmers was undertaken on the likely impacts of the RDP on various environmental issues. The results of this analysis suggest that 69% of respondents believe that the RDP has a significant or moderate impact on reducing GHG emissions.

Nearly 20% of respondents indicated that they did not believe that the RDP had any impact on GHG emissions.

Modelling undertaken by ADAS on the environment impact of GLAS on water quality and pollutants suggests that GLAS will lead to a long-term annual reduction of between 5-9% for nitrate, phosphorus, nitrous oxide and methane.

The BDGP scheme which support the beef is also likely to have some positive environmental benefits. In terms of GHG emissions, the impact of BDGP has yet to be comprehensively quantified. Based on 2018 uptake levels of 580,000 BDGP cows, it is estimated that by 2030 there would be a cumulative 1.6 Mt reduction in $CO_2$ equivalent on 2015 levels – which equates to a marginal abatement potential of around 11%. This is due to cumulative benefits which will lead to the current top 1% of cattle (in terms of efficiency and star-rating) becoming the norm by 2030.

As at the end of 2018, there was no scheme within the RDP which explicitly aimed to improve renewable energy production. However, in 2019, TAMS was re-opened to support investment in solar photovoltaic on farms.

| EU | 25. To what extent has the RDP contributed to achieving the EU 2020 headline target of reducing the number of Europeans living below the national poverty line? |
|---|---|

As part of our research we observed the views of RDP farmer beneficiaries and LEADER groups/beneficiaries on the impact that they believe the RDP has had on achieving the EU 2020 target of reducing the number of individuals living below the national poverty line. Just over one third (36%) of respondents view the impact of the RDP on poverty reduction to have been moderate, while 22% believe the RDP to have a significant impact in efforts to achieve the EU 2020 poverty reduction target. The results are, likely to reflect the composition of the RDP as many of the measures are not directly focused on reducing poverty. However the increased employment arising from the RDP as well as ANC measures are likely to have impacted positively in poverty levels.

In considering the impact of RDP on poverty objectives of relevance are ANC and LEADER measures. ANC is primarily an income support for farmers who face natural constraints (in terms of land quality) in the operation of their farms. This support is likely to be the most relevant in terms of support for those on low income. The regional analysis of ANC beneficiaries is shown below and highlights that the majority of ANC beneficiaries are in the Border and West regions. These are the two regions that typically have the highest levels of 'at risk of poverty'. We estimate that around 16% of households in the Border regions are in receipt of support from the ANC. For the Western region, this figure is nearly 20%. ANC support is worth, on average, around €2,000 to each farm.

**No. of Beneficiaries Supported by Region (ANC & LEADER)**

| Region | 2014-2018 (ANC) | 2014-2018 (LEADER) | % of Total |
|---|---|---|---|
| Border | 23,097 | 291 | 23.8% |
| Dublin | 140 | 43 | 0.2% |
| Mid-East | 4,063 | 127 | 5.9% |
| Midlands | 8,484 | 219 | 10.4% |
| Mid-west | 12,600 | 278 | 13.0% |
| South East | 4,883 | 216 | 5.2% |
| South-West | 13,663 | 259 | 14.0% |
| West | 26,961 | 190 | 27.6% |

***Source: Indecon analysis of DAFM and DRCD data***

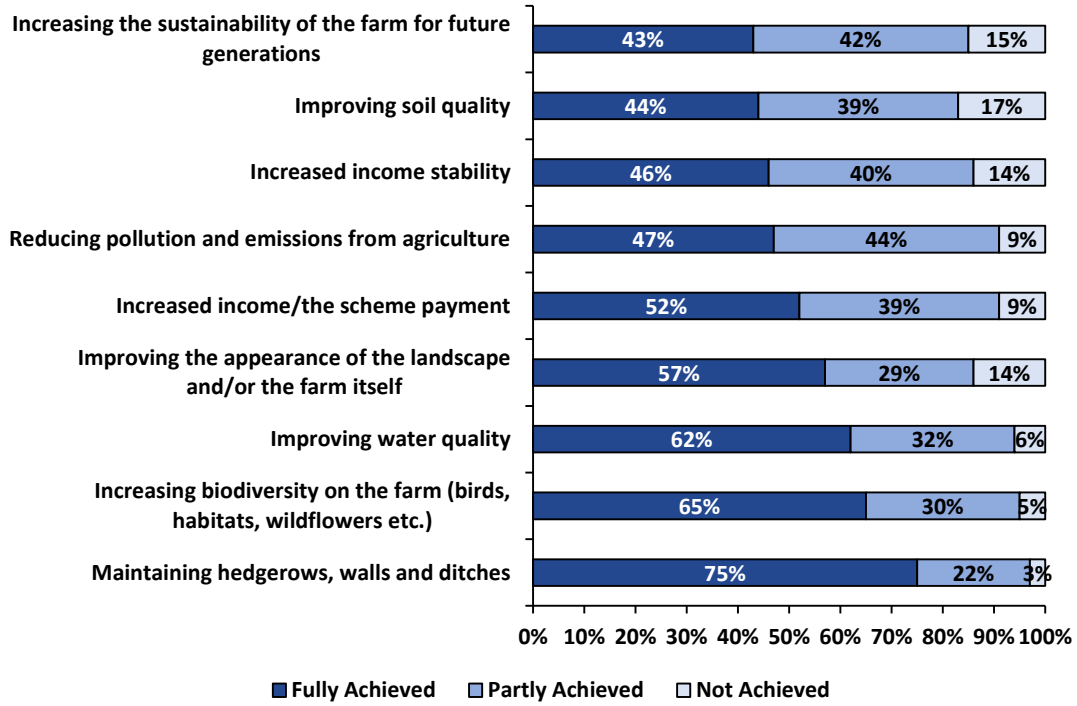
The figures shown in the next table highlight the decline in rural poverty. The comparison with national data however demonstrates the scale of challenge faced by RDP. While the poverty rates declined not all of this can be attributed to the RDP.

| Impact of RDP on Rural Poverty | | | | |
|---|---|---|---|---|
| | Rural Areas | | State | |
| Indicators | 2014 | 2018 | 2014 | 2018 |
| Degree of Poverty | 19.7% | 17.1%* | 13.1% | 13.6%* |
| Population (15-64) | 1,273,500 | 1,249,100 | 3,061,200 | 3,175,800 |
| ***refers to 2017 data as this is the latest available data*** | | | | |
| ***Source: Indecon Analysis of Eurostat data*** | | | | |

| | |
|---|---|
| EU | 26. To what extent has the RDP contributed to improving the environment and to achieving the EU biodiversity strategy target of halting the loss of biodiversity and the degradation of ecosystem services, and to restore them? |

As part of an evaluation of GLAS, undertaken by ADAS, a survey of GLAS beneficiaries was completed. Some of the findings from this survey are shown in the figure below. The results indicate that most of the participants rank environmental targets as having been achieved or partly achieved as result of GLAS. Over 50% of respondents suggested that GLAS led to the maintenance of hedgerows, walls and ditches, increased biodiversity of farms, improvement of water quality and visible landscape and increase in income/scheme payment.

**Views of GLAS Participants on Benefits Achieved Through GLAS**




***Source: ADAS Survey of GLAS Participants***

The ADAS survey responses were generally positive and the results suggested improvement in attitudes toward farming and environment. Specifically, more than 60% of farmers agreed that GLAS led them to apply knowledge on their farm, made them attentive to implement actions to deal with environmental issues, made them open to seek advice for the farm natural environment, and increased awareness of actions that can be taken to address environmental issues.

Survey evidence suggests that GLAS has achieved a number of key benefits including maintaining hedgerows, increasing biodiversity on farms and improving water quality. Evidence collected at the farm level by ADAS indicates that over 75% of required actions were completed. The findings from the ADAS biodiversity report indicated that around 66% of sites were deemed to have outcomes that could not be achieved without GLAS support. 88% of farms had implemented actions appropriately with no missed opportunities.

| | |
|---|---|
| EU | 27. To what extent has the RDP contributed to the CAP objective of fostering the competitiveness of agriculture? |

The key target indicators for projects relating to enhancing competitiveness are shown in the table below. The percentage of holdings who have received support for modernisation is considerably below the planned target level for 2023. However, this is likely to increase in the remaining years of the programme as spend on TAMS II increases. The number of participants trained during the 2014-2018 period has exceeded 100,000.

**RDP Target Indicators for enhancing Competitiveness objective**

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| T4 - % of holdings with support for investments in restructuring/modernisation | 1.38% | | 2.66% | 9.11 |
| R2 - Change in agri. output on supported farms/AWU* | 6.57% | Data not available | Data not available | |
| T5 - % of holdings RDP supports for young farmers** | 0.41% | 0.75% | 1.16% | 2.86% |
| No. of EIP operational groups to be supported for project implementation. | 1 | 7 | 8 | 22 |
| No. of other cooperation operations~ | 654 | 129 | 783 | 1,200 |

**** This is calculated over a two year period from 2015 to 2017 looking over the change in productivity across these periods. This only relates to TAMS beneficiaries compared to non-TAMS beneficiaries***
*****This is based on the Young farmers supported through TAMS II***
***Source: DAFM Indicator Data.***
***~: Refers to Number of New Farm Partnership agreements funded by the Collaborative Farming Grant Scheme***

In terms of the relationship between receipt of the KT payment and farm output and productivity, a counterfactual analysis is not feasible due to the small number of observations in the National Farm Survey and only one time period of data. However, the sample fixed effects results of new econometric analysis undertaken by Indecon (implying correlations) suggest a potential positive association between the receipt of the KT payment and farm output and agricultural incomes. Our survey evidence also indicates that 57% of beneficiaries suggested they would not have participated in a knowledge transfer group without the RDP support. This suggests that relatively low levels of deadweight. This survey also indicated that the scheme has positive impacts on agricultural competitiveness, creating a knowledge base in rural areas and agri-environmental issues.

The largest measure directly relating to enhancing the competitiveness of agriculture is TAMS II which involves investment in physical assets. Indicator data shows that €129 million have been spent as part of TAMS I and TAMS II at the end of 2018.[102] It is likely that the impacts of this investment will only be seen over time. This is consistent with the results of econometric counterfactual modelling of TAMS II which does not indicate any significant impact to date on farm output or productivity. However, new econometric counterfactual modelling which includes the capital investment in previous rounds of RDP leads to results that confirm a positive impact of capital grants on farm output and productivity. The estimates of impact from counterfactual econometric models suggests a positive impact on output on between 6 – 7% and an increase in productivity of the order of 5 – 6%. For example, in interpreting the results it is useful to consider the results from the propensity score matching model. This is an econometric model which attempts to measure the impact of the RDP TAMS II[103] investment on farms, compared to similar farms who did not make the investment. The results indicate an impact on output measured by ATET of 0.0686 which suggests a 6.86% increase in output compared to what would have occurred without TAMS II investment.

**Impact of TAMS II on Output and Productivity (2001-2017)**

| Econometric Estimation Model | Outcomes Variables | ATET |
|---|---|---|
| **Regression Adjustment Model (RA)** | Log Output | 0.0728***<br>(0.0111) |
| | Log Productivity | 0.0546***<br>(0.0130) |
| **Propensity Score Matching** | Log Output | 0.0686**<br>(0.0304) |
| | Log Productivity | 0.0665***<br>(0.0246) |

Notes: SE in Parentheses *** p<0.01, ** p<0.05, * p<0.1
**Analysis on NFS Data.**

Overall, our modelling and analysis suggests that the RDP support will contribute to enhancing the competitiveness of agriculture. This enhancement of competitiveness is likely to be mainly through capital investment measures. Indecon analysis has also found that the Knowledge Transfer Groups are likely to have a small positive impact on competitiveness but it is difficult to quantify the impacts at this stage of the Programme. There are other smaller measures in the RDP that may have an impact on competitiveness (such as the EIPs) but it is not possible to estimate this impact currently.

| | |
|---|---|
| EU | 28. To what extent has the RDP contributed to the CAP objective of ensuring sustainable management of natural resources and climate action? |

The key target indicators for the agri-environmental schemes are shown in the table below. It must be noted that many of these RDP target indicators are likely to be met or exceeded by the end of the programme. It must be noted that these indicators represent planned outputs and the associated impacts may take a number of years to become observable.

**RDP Target Indicators for Sustainable Management of natural resources and climate management**

[102] This amount includes €15.81 million for non-productive investments under AEOS from previous RDP.

[103] We note that capital investment grants have been part of different schemes during previous RDPs. The analysis above relates to capital investment grants.

| Indicators | 2014-2017 | 2018 | 2014-2018 | Planned Output 2023 |
|---|---|---|---|---|
| T9- % of holdings under biodiversity/landscape contracts | 16.97% | 1.23% | 18.2% | 20.77% |
| T10- % of holdings under water management contracts | 18.40% | 2.00% | 20.4% | 20.91% |
| T12- % of holdings under soil management contracts | 16.39% | 1.91% | 18.3% | 18.08% |
| T17- Number of LUs under contracts to reduce GHG/ammonia emissions | 26,082 | 44,264 | 70,346 | 11,500 |
| T18- % of land under contracts targeting a reduction of GHG/ammonia emissions | 11.17% | 1.28% | 12.45% | 10.79% |
| T19- % of agricultural and forest land under management to foster carbon conservations | 0.08% | - | 0.08% | 0.32% |
| ***Source: DAFM Indicator Data.*** | | | | |

Training to support some of the significant agri-environment schemes (GLAS and BDGP) was implemented in the early stages of the 2014-2020 RDP. This training was a requirement for participation in these schemes. GLAS replaced the previous AEOS scheme and is the main agri-environmental measure of the RDP.

Statistical analysis, using the National Farm Survey, indicates that GLAS beneficiaries typically have lower income, have less capital investment and lower livestock units than non-GLAS participants. Modelling undertaken by ADAS on the environmental impact of GLAS on water quality and pollutants suggests that GLAS will lead to a long-term annual reduction of between 5-9% for nitrate, phosphorus, nitrous oxide and methane. ADAS concludes that the major cause of these reductions is likely to be the Low Input Permanent Pasture action (and the comparable Natura Habitat and Farmland Bird actions). This action has the highest level of uptake.

The Beef Data and Genomics Programme (BDGP) requires beneficiaries 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 such as reduced Green House Gas emissions. This scheme will take a number of years before impacts are measurable. The analysis also shows that the number of cows moving from lower rated to higher rated is higher for BDGP herds than non-BDGP herds. Based on analysis by the ICBF on differences in cow weight, calf wean weight and calving, it is estimated that higher rated cows are likely to have lower $CO_2$ emissions by around 6% per animal. It must also be noted the types of farms that are typically in receipt of BDGP support are in the western half of the country where the land quality is poorer. It is also likely that many of the farmers who receive BDGP also receive GLAS and ANC support. This is important in terms of sustained environmental improvement and the links between BDGP and GLAS are important in this context.

The largest measure (in public funding terms) in the RDP is Measure 13 (ANC). This support is received by over 70% of active farmer beneficiaries. This support is provided to farm holdings who face natural disadvantages in their farmland. One of the rationales for this support is the public good value of maintaining agricultural land. New survey evidence suggests that around 27% of ANC supported farms would have become abandoned without this support.

The Organic Farming Scheme has a budget of €56 million over the 2014-2020 RDP. The target for the RDP was to attract some 16,000 hectares of new land into production and to support 46,000 hectares of converted land. These targets were achieved in 2016. In the period 2014-2018, the total new organic land is estimated to be around 1.2% of the total land area which suggests progress is being made.

| | |
|---|---|
| EU | 29. To what extent has the RDP contributed to the CAP objective of achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment? |

The RDP had an objective of promoting balanced regional development and as well as measures to maintain overall employment and farm viability in rural areas. This was supported through the implementation of Measure 19 (LEADER). The initial overall allocation for this measure was €250 million between 2014-2020, which represents around 6% of the overall RDP allocation. At the end of 2018, the expenditure on this measure was just over €36 million. It is likely that this will increase in 2019 and 2020 as a large number of projects have been approved since 2018.

The regional distribution of LEADER grants and projects in Ireland shows the number of LEADER projects is largest in the north-west and south-west regions, while the funding amounts are concentrated in the west, north-west and south-west regions. Our survey of LEADER Groups indicated that around 31% indicated that it was difficult or very difficult to attract good proposals. In terms of alternative funding, 77% of LEADER beneficiaries believed that they would have not been able to secure alternative funding without the LEADER support.

Overall, LEADER had a slow start in the early years of the RDP but has shown significant progress in terms of supporting projects in 2018. It is not clear at this stage if the full allocation of the LEADER funding will be spent by the end of the RDP but Indecon note that spending is permitted until the end of 2023. The LAG's have suggested as part of their annual reporting process that approximately 80% of the project budget will be allocated by the end of 2019, with the reminder to be allocated in 2020. However, it must be noted that there is a significant lag between the approval of a LEADER project and when the funding is drawn down.

The figures shown in the next table highlight the increase in rural GDP. The comparison with national data however demonstrates the scale of challenge faced by RDP. Rural Areas have significantly lower levels of GDP per capital. This will likely have impacts on disposable income and poverty levels in these areas.

**Impact of RDP on Rural economy**

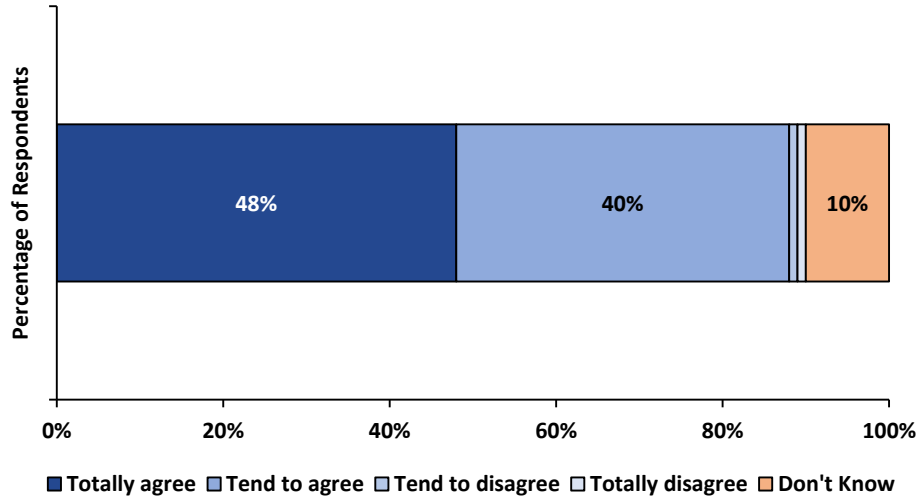
| | Rural Areas | | State | |
|---|---|---|---|---|
| **Indicators** | **2014** | **2018** | **2014** | **2018** |
| Rural GDP per capita | 25,200 | 28,400* | 42,000 | 61,200* |
| Population (15-64) | 1,273,500 | 1,249,100 | 3,061,200 | 3,175,800 |

***refers to 2017 data as this is the latest available data***
***Source: Indecon Analysis of Eurostat data***

| | |
|---|---|
| EU | 30. To what extent has the RDP contributed to fostering innovation? |

The public also believes that the various measures under the RDP are likely having a positive impact on fostering innovation. Around 88% of the public agreed that the RDP assisted in fostering innovation.

**Views of Persons Surveyed by Eurobarometer on the Impact of RDP on Fostering Innovation**




***Source: Eurobarometer 467***

The main schemes that foster innovation in the RDP are Measure 1 (Knowledge Transfer and Training supports), TAMS, GLAS, BDGP and the European Innovation Partnerships (EIPs). It will take a number of years before the impacts of these measures become observable.