Farm:Carbon

Carbon Farming for Nature, Communities, and Climate

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Green Restoration Ireland Cooperative Society Ltd

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An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

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AGRICULTURE & INNOVATION

The European Agricultural Fund for Rural Development:
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1.0 Introduction

1.1 Overview

The aim of this carbon farming programme is to deliver a results-based agri-environmental scheme that increases income for farmers for improving the environmental services provided by their lands, in particular their agricultural peatlands. It is a pilot agri-environmental research initiative that will identify and develop suitable measures for scaling up. This two year project (2021-2023) and is co-funded by the Department of Agriculture, Food and the Marine and the EU with a budget of €1.149 million.

Local farmers with peat soils on selected tributaries and sections of the Camcor, Little Brosna and Silver catchments (in the areas highlighted in Figure 1 below) will be eligible for a combination of action- and results-based payments that address the environmental impacts arising from agricultural peatlands and adjacent lands. These measures will diversify and improve their incomes by means of a collaborative approach that is supported by a wide range of project partners.

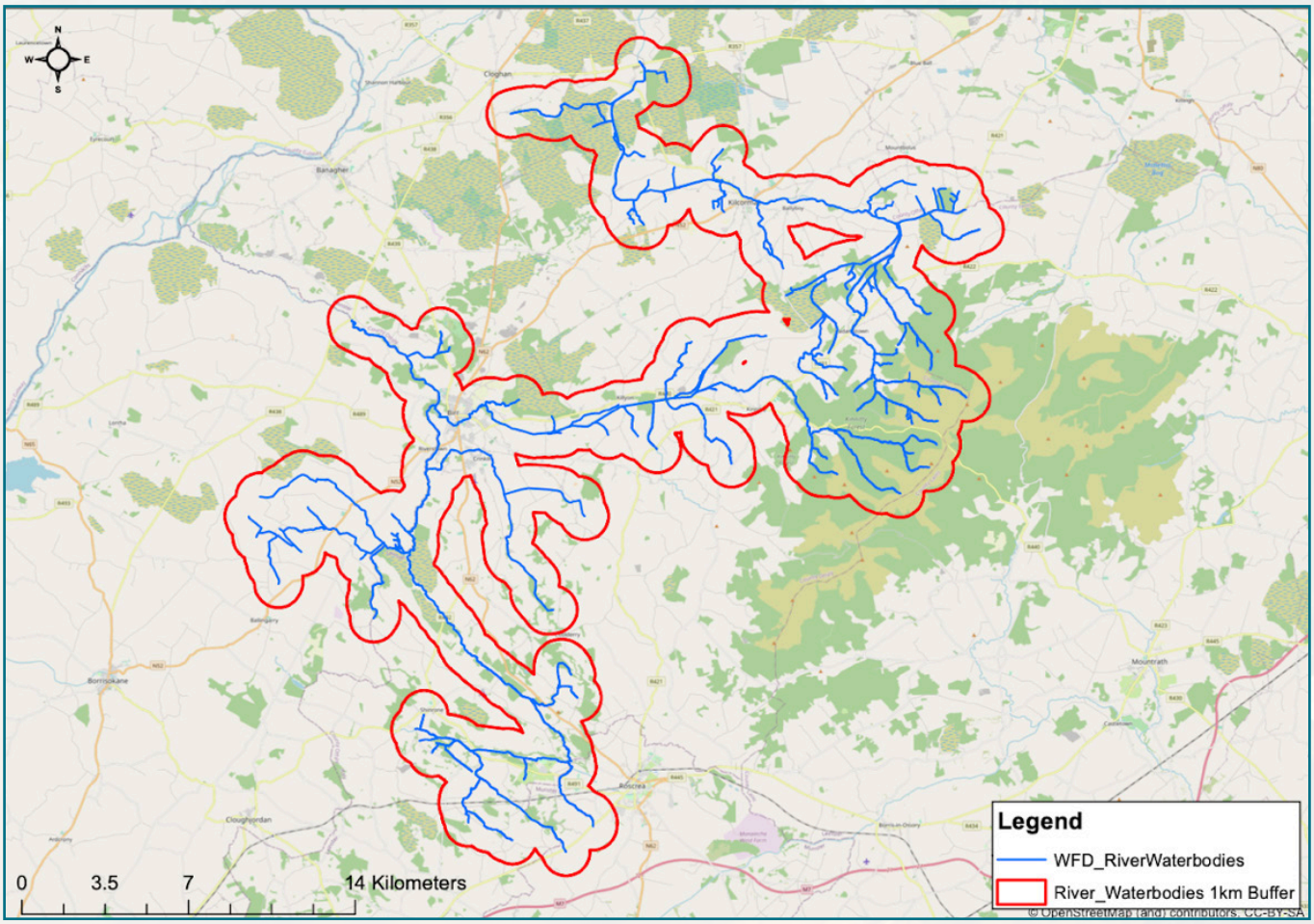

Figure 1. Lands within 1 km of Camcor, Little Brosna and Silver River catchments.

The Farm:Carbon EIP will:

- 1) customise proven solutions for addressing the three key issues of nature loss, greenhouse gas emissions and water pollution, and
- 2) trial new regenerative methods that improve farm incomes and produce long-term environmental improvements.

1.2 What is it about?

Participating '*pioneer*' farmers will take part in a collaborative *farmer-science* learning process to establish '*lighthouse*' farms. A lighthouse farm is a commercially viable farm that provides sustainably produced food and ecosystem services. These farms will act as outdoor laboratories supplying grounded research and monitoring for the improvements of specific measures being advanced. Building on the significant work done by previous EIPs, a comprehensive program of survey and scientific work will determine baseline scientific measures of carbon storage, gaseous emissions, biodiversity and farm habitats, water quality and soil health that will be completed before and after measures are implemented. This will help determine quantifiable environmental improvements for actions taken that will provide the evidence base for a wider uptake of results-based payments for these types of farmlands.

Compilation of the findings made will be used to generate future policies and a practical Peatland Farm Scorecard for further monitoring to determine the level of Results Based Payments (RBP) during and beyond the lifecycle of the initial project. This work will inform future expansion of the program to meet the government targets for improving environmental services from farmed peatlands. This is a significant opportunity to get ahead of the curve and positively shape policy for farming of agricultural peatlands into the future.

It is an *entirely voluntary programme* and so participating farmers, informed by the survey work, will select the farm-specific actions that they wish to implement, inclusive of but not limited to for example, peatland restoration, pilot paludiculture (wet agriculture) trials, planting of riparian woodlands and hedgerows, nature-based runoff control measures and regenerative agriculture test-plots.

The EIP will help farmers deliver a range of mitigation measures on their farms to assure farm sustainability by improving the quality of their farm habitats or whole-farm score. The following are the seven categories of supporting actions that are available to farmers within the Programme are detailed below in section 3.0.

1) Peatland and agriculturally managed peat soil restoration measures***;
2) Water protection & wetland creation measures;
3) Habitat retention, creation & enhancement measures
4) Farmyard runoff control measures;
5) Farm roadway measures;
6) Nutrient management measures, and
7) Grazing infrastructure & livestock management measures.

Furthermore, all applicant farmers will be invited to become members of a cooperative to provide peer-to-peer support, learning opportunities and contractor services to the development of the project in the long-term. This will provide permanent support for the further expansion of carbon farming programs due for launch under the EU Carbon Farming initiative from 2022.

******As this program is focused on Peatlands under Agricultural Management this measure will be a condition of participation in this program, with a range of options available here and through subsequent measures.***

1.3 What will I need to do?

Farmers who enter Farm:Carbon project will need to share relevant baseline information e.g. nutrient management plans etc. For each farm the Project Team will survey the lands with the participant farmers collecting samples of flora and fauna, soil and water and carry out the following 'before' and 'after' surveys:

- biodiversity or 'biological' diversity is the natural variety of species and habitats present - aquatic macro-invertebrates, flora and fauna (birds, pollinators etc.), and habitats,
- peatlands can store thousands of tonnes of carbon per hectare - a peat depthing survey will establish the carbon storage of their peatlands,
- soil and water quality - including microbes and fungi that control soil fertility,
- health & safety surveys to identify practical measures to improve on-farm safety.

Subsequently the project team will supply participants with a detailed Whole Farm Plan which will include a range of site-specific management actions tailored for each activity, area and habitat on the farm. Where implemented these actions will improve biodiversity, carbon storage, water quality, in-stream habitat and riparian zones as well as farm safety.

Besides collaborating with the Team to guide them and help them carry out their work, the participating farmers will be invited to take part in peer learning workshops and open days (see more information section 3.0). The Project Team will also select the best sites on the farms for sampling of soils and waters and will need ongoing access to these areas over the two-year period to collect follow-up samples (biodiversity, soil, water etc) to monitor changes, (e.g. in species present, water quality etc.) over the course of the program. This will help determine whether the measures being implemented are effective or not. Where possible, farmers will be paid to implement measures themselves including e.g. collection and couriering of soil or water samples. Farmers will also need to share information on chemical inputs to their farm during the programme.

1.4 What will it provide?

Participants will be assigned 100% funding for measures up to €5,000, with an additional 50% funding up to a maximum of €10,000 per farm to co-fund the delivery of supporting actions and resulting environmental improvements on lighthouse farms. The rate of funding per action varies from 25% to 100% depending on the environmental benefit of the action.

Each participant farmer working with the Project Team will receive full biodiversity surveys for their farm, as well as the results of any soil and water sampling carried out in selected locations, and a list of the proposed measures in the form of a suggested farm/land-parcel plan, from which selected measures can be implemented. A farm accountant will also advise on the best means to improve farm finances and the effects of proposed actions to be taken in the wider context of the project aims. The actions selected will be agreed on in a final Whole Farm Plan which details all the proposed farm actions to be completed including the location, type, quantity, costing of works proposed and payment details.

Action-based payments: The farmer can then proceed with the works, working with the Project Team where additional expertise is needed, and on completion of measures submit a payment claim. This will consist of a declaration that works have been completed together with any supporting documents required (receipt as proof of purchase, photograph etc), which varies depending on the type of action completed. The Project Team will visit participant farms to verify that the works are completed in line with Programme specifications, and for further monitoring for research purposes throughout the project cycle.

A list of standard farm actions is presented in section 3.0 below, together with the level of co-funding available. There are a number of actions that will need to be costed individually in consultation with the project team. Costs will be based on standard rates for labour, machinery, and materials as published by DAFM schemes such as TAMS.

The list of actions below is not exhaustive and additional measures may be co-funded by the Programme on a case by case. Any innovative ideas for appropriate actions that farmers may have are welcome and should be raised with the Project Team for specific consultation. Actions and associated costings may be revised over the duration of the Programme at the discretion of the Project Team.

Results-based payments: The condition of peatland, grassland and woodland habitats on farms are used as indicators of environmental quality that determine the level of payments made. The higher the quality of these habitats, the greater the level of biodiversity, the higher the water quality and the greater the levels of avoided greenhouse gas emissions. This translates into a higher payment for participating farmers to receive.

With respect to the results-based payment component : any damaging activities with negative impacts recorded during subsequent visits will automatically result in a reduced payment. Details of these 'autofail' events will be supplied at the initial surveying phase.

Outreach service: An outreach service for farmers will also be available to provide follow-up advice and support.quality and the greater the levels of avoided greenhouse gas emissions. This translates into a higher payment for participating farmers to receive. With respect to the results-based payment component any obviously damaging activities with negative impacts recorded during subsequent visits ***will automatically result in a reduced payment***.

Outreach service: An outreach service for farmers will also be available to provide follow-up advice and support.

1.5 What are the issues to be addressed?

Many familiar natural features of our Irish landscape have changed or been lost as agriculture has intensified over the last few decades. We are all familiar with the plight of the corncrake and as things currently stand, 26% of our formerly common, native bird species including lapwing, kestrel and skylark are heading rapidly towards extinction while numbers of breeding curlew have plummeted by 96%! Once common plants and animals and habitats such as traditional meadows are also increasingly scarce so that now more than a third of our bee species are in danger along with countless other species of insects. This has a knock-on effect on the birds and animals that depend on them and also on the flowers and crops that need their pollination services.

At the same time our waterways have suffered greatly losing up to 80% of their aquatic life which again has had a cascade effect on fish and other animals higher up the food chain. The latest monitoring data shows us that 18% of our rivers are in 'Poor' condition and 28% are 'Moderate' while only 44% are in 'Good' condition and as little as 9% are unpolluted with a 'High' water quality status.

In relation to climate change, peatlands only cover 21% of our land area but represent 64% of our total soil organic carbon stock representing the largest single store of carbon in the Irish landscape. About 19% or 295,000 hectares of this area is pasture which releases between 8 and 20 tonnes of carbon dioxide (CO_2) per hectare per year equating to over 3 million tonnes of CO_2 annually. Addressing this problem fairly and effectively is a key challenge for the country and an initial target has been set to address 40,000 hectares or just over 7% of these peat-based grasslands.

Meanwhile, there is a general trend of declining numbers of Irish farmers and an increasing average age and declining farm incomes, thereby threatening the future viability of our rural communities.

1.6 Objectives

This project aims to support local farmers to remain farming, and encourage generational succession by diversifying and improving sources of farm based income, while bringing about improvements in carbon storage, biodiversity, water quality and regulation in the Camcor, Little Brosna and Silver River catchments.

The key objectives are to:

- Develop a collaborative approach with all relevant stakeholders to identify environmental quality concerns in the catchments.
- Undertake detailed Whole Farm Assessments for all participating farmers to identify environmental risks and opportunities on the farm.
- Identify and implement the most suitable on-farm mitigation measures to improve carbon storage, water quality and restore habitats and farm biodiversity.
- Establish lighthouse farms to advance our understanding of best practices for sustainable management of agricultural peatlands.
- Develop a results-based payment scheme with pioneer farmers for future scaling up of carbon farming nationwide.
- Establish a cooperative with participating farmers to support ongoing development of these activities beyond the lifecycle of the programme.

1.7 Eligibility Criteria

To be eligible to apply to join the Farm Carbon EIP project, participant farmers must:

- Be actively farming at least one land parcel contiguous to the watercourses or tributaries in the Camcor, Little Brosna or Silver River catchments;
- Have an active herd number;
- Be 18 years of age or over in the year submitting an Expression of Interest form;
- Must have submitted an annual application under the Basic Payment Scheme, including the declaration of all lands farmed;
- Provide a tax clearance certificate;
- Must **NOT** be registered for the REAPS scheme.
- Participation in the EIP project is voluntary.

Places are limited at this first stage but regardless of whether farms are selected or not, all applicant farmers will be invited to join a collaborative network and avail of online trainings, farm walks where suitable, involvement in cooperative approaches to implementation of key works, and further opportunities generated by Green Restoration Ireland Cooperative Society Limited. Farmers joining this wider collaborative network will be short-listed to join later versions of Farm Carbon programs as the model is being developed in Ireland as part of the EU-led Carbon Farming Initiative. developed in Ireland as part of the EU-led Carbon Farming Initiative.

2.0 Mitigation Measures

2.1 Eligible Measures

Participating farmers will select from the measures outlined below for implementation. These measures are designed to enhance biodiversity, improve water quality, increase carbon sequestration, and reduce greenhouse gas emissions and other air pollutants. The financial supports available for each action are also listed.

	MEASURES	Farm entitlements / requirements	Cost / unit (& max funded cost)	Ecosystem benefits
1. Peatland & agriculturally managed peat soil restoration measures				
1.1	Peat / plastic dams*		€176 / unit	B, F, W
1.2	Earth bunding in drains	Max 10 units	€50 / unit	F, W
1.3	Paludiculture (cattail) trial plots*	€10,000/ha *** (establishment)		B, C, F, W
2. Water protection & wetland creation measures				
2.1	Leaky log dams*	Max 10 units	€300 / unit	F, W
2.2	Brash dams*	Max 10 units	€100 / unit	F, W
2.3	In-channel settlement pond (for silt settlement within open farm drains)*	1 pond per farm	€2,000 / farm	B, F, W
2.4	In-channel planted silt traps (wetland) in open farm drains*	10 per farm	€800 / farm	B, F, W
2.5	Create in stream habitats*	1 set of measures per farm	€2,400 / farm	B, C, W
2.6	Infield mound (contoured and reseeded to permit runoff capture and infiltration)	Max 500 m	€5 / m	F, W
2.7	Contour swale and planted ditch combination for surface runoff capture and infiltration*	Max 500 m	€8 / m	F, W
2.8	Keyline ploughing		€180 / ha	B, C, F, W

	MEASURES	Farm entitlements / requirements	Cost / unit	Ecosystem benefits
3. Habitat creation, enhancement & retention measures (terrestrial)				
3.1	Hedge-laying (G)*	Max 500 m	€25 / m	B, C, W
3.2	Hedge-creation*	Max 500 m	€7 / m	B, C, F, W
3.3	Tree lines / 'ash dieback' replacement planting*	Max €240	€80 / 100m (20 trees)	B, C, F, W
3.4	Field margin*	Max €500	€50 / 100 x 2.5 m (every subsequent 2 x 100 m)	B, C, F, W
3.5	Invasive species control (hogweed, balsam, knotweed, laurel)	Max €200	€100	B, W
3.6	Tree, gorse etc. removal (from peatland)*	Hectare (low cover)	€402	B, C, W
3.7	Native/riparian woodland*	€5880 / ha*** (establishment)	€665/ ha annually	B, C, F, W
3.8	Riparian buffer strip creation	Max €500	€50 / 3 x 100m (€30 / every subsequent 2 x 100 m) and/or €1 / m for every additional meter in width of buffer strip u to 15 m	B, C, F, W
3.9	Conservation of (non-peat) natural grassland		€200-€500/ha annually	B, C, F, W
3.10	Agroforestry / Silvopasture*	€4450/ha*** (establishment)	€260/ha annually	B, C, F, W
3.11	Orchard establishment*		€260/ha annually	
3.12	Beekeeping*	€550/hive	€550/hive	
3.13	Bespoke measures*	Applicable in relation to sites of cultural heritage and/or Annex II species		
3.14	Wooded riparian buffer zones alongside drains, streams or river*	Max €2000/farm	€3/m for 2m widths; - €6/m for 5m widths; €10/m for 10m widths; and/or €1 / m for every additional meter in width of buffer strip up to 15 m	B, C, F, W
3.15	Bird/Bat boxes, Owl Boxes, Bee Scrapes, and site specific habitat creation measures*	Max €750/farm	Max €750/farm	B, C, W
4. Farmyard runoff control measures				
4.1	Rainwater harvesting	3000l oval tank	€1,165	F, W
4.2	Gutters and downpipes installation	Max 40 m	€25 / m	B, F, W

	MEASURES	Farm entitlements / requirements	Cost / unit	Ecosystem benefits
5. Farm Roadway Measures				
5.1	Roadway soakage areas (contoured and grass seeded)*	Max 500 m	€6 / m	F, W
5.2	Settlement ponds*	1 pond per farm	€2,000 / farm	B, F, W
5.3	Mounding	Max 500 m	€3 / m	F, W
5.4	Cross-fall orientation or channel drains for diverting runoff from sloping farm roads*	Max 10 locations	€150/location	F, W
5.5	Silt traps (wetland or willow planted)*	Max 5 pond per farm	€200 / unit	B, C, F, W
6. Nutrient Management Measures				
6.1	Permanent pasture*		€475 / hectare	B, C, F, W
6.2	Permanent pasture of multi-species swards*		€325 / acre	B, C, F, W
6.3	Tank and tea brewer/ bubblers (pilot farm)*	€5000***		B, C, W
7. Grazing Infrastructure and Livestock Management Measures				
7.1	Multiple access points	Max 5 units	€150 / unit	C, W
7.2	Paddock grazing	Total grazing block	€1,500 / farm	C, W
7.3	Hydrodare piping (3/4 normal, 150 m roll)		€104 (€52)	
7.4	Water access / relocation*	Max 4 drinking points / farm	€200 / trough	
7.5	Protecting water courses (fencing)*	Max 500m	€2 / m	B, C, W
7.6	Pasture pump	Max 2 per farm	€300 / pump	
7.7	Electric fence	€1.50 / m	€3 / m (€1.50 / m)	
7.8	Electric fencer (standard)	€67.50	€135 (€67.50)	
7.9	Electric fencer (high power)		€204 (€102)	
7.10	Solar 12V fencer		€492 (€246)	
7.11	Batt latches (for mob grazing)	Max 2 per farm	€350 (€700)	C, W
7.12	Post and wire fence		€3 / m (€1.50 / m)	
7.13	Sheep fence		€5.30 / m (€2.70 / m)	
7.14	Galvanised gate 4 ft		€235 (€117.50)	
7.15	Galvanised gate 8 ft		€262 (€131)	
7.16	Galvanised gate 12 ft		€296 (€148)	

7.17	Stone wall repair: internal		€4 / m (€ 3 / m)	
7.18	Stone wall repair: external		€4 / m (€ 2 / m)	
7.19	Livestock conversion	Consult with team		
7.20	Dry Composting Tunnel	Maximum 1 per farm at €4000		

N.B. 1. B = Biodiversity, C = Carbon sequestration, F = Flood Control, W = Water Quality
*2. Rates will be ascertained according to environmental benefits on a site-specific basis at 25% for 'farm' works, works with agricultural and environmental benefits at 50% and 'environmental' works at 75% (wall repair etc) and bespoke measures etc. at 100% (marked by asterisk)**
*** - Measure for bespoke candidate - pilot regenerative farm.*
**** - Measures co-funded via additional streams - consult with Project team.*

2.2 Results-based Payments

Farmer payments will be paid directly to farmers' bank accounts by the project. The regulations that govern the operation of the Carbon Farming EIP project do not permit direct area payments in the same manner as more traditional Agri-environmental schemes. Project participants have the opportunity of two payment strands based on the mitigation measures selected and a supporting result-based measures option. Verification checks will be carried out at least annually at any time during the year by the project team given sufficient notice of at least 5 working days. With respect to results-based payments any obviously damaging activities recorded on the date of the visit, termed 'auto-fail events', will result in a reduced payment. These will be detailed in the overall Farm Plan on a case by case basis.

3.0 EIP Co-learning/Peer Learning Workshops & Open Days

Co-learning workshops, trainings and open days will form an integral part of this EIP and will assist farmers to develop the skills and understanding required to make well informed management decisions for their farm that take due consideration of environmental issues with the view of moving towards a more sustainable farm enterprise. The workshops will also provide the farmers with the opportunity of increasing their income through Carbon Farming while acting as a social engagement with participant farmers from across the region. The key focus areas of on-farm trainings will include improving environmental results, farming economics and increased efficiency in farming.

Requirements:

1) Participants are required to attend a minimum four workshops per annum, which will be held on week-day evenings.

2) There will be an action-based task to complete at each on-farm training to illustrate an understanding of the project goals. This will involve the participant farmer implementing an action(s) that will result in a score increase for their own farm. Farmers hosting on-farm trainings will receive a fee to cover their time and any expenses.

3) Participants will lead the workshops, with assistance from guest specialists, while the project team will add a formal structure and provide guidance during the workshops.

The Project Coop, online website and forum will facilitate peer support and exchange of ideas.

All participating farmers must join a Discussion Group which is a mandatory requirement. These discussion meetings will be approximately 1 hour in duration and will be of a very practical nature. It is envisaged that these meetings will take place on individual farms. Five meetings will be offered each year and a minimum of four must be attended.

3.1 Application Process:

Eligible Participants must fill and return an Expression of Interest form available on application through EIP@farmcarbon.ie, or via direct download from www.farmcarbon.ie . To request a form by post , call or text EIP: followed by your address to (089) 2324012.

The Farm Carbon project is an EIP (European Innovation Partnership) Locally Led Project being administered by Green Restoration Ireland Cooperative Society Limited.

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Green Restoration IRELAND

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