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Can agriculture and reduced emissions coexist? Meet the pioneer farmers who are leading the way

An initiative involving 23 farmers aims to show how a balance between agriculture and the environment can be struck

***Sylvia Thompson**, a contributor to The Irish Times, writes about health, heritage and the environment*

*Farmers **Donie** and **Colette Reegan** with **Doug McMillan** Project Manager Farm Carbon EIP at one of the new ponds on the wetland farm in Shinrone, Co Offaly. **Photograph:** John D Kelly*

Walking through the fields and bog lands of Donie and Colette Reegan's farm near Shinrone, Co Offaly, recently felt like being on an important exploratory mission.

Reegan invited The Irish Times on to his 14-hectare farm – one third of which is peat grasslands next to a raised bog – with Dr Douglas McMillan, the project manager of **Farm Carbon European Innovation Partnership**. This initiative aims to develop and showcase new methods of farming peatlands while reducing greenhouse gas emissions (GHG), enhancing biodiversity and improving water quality.

But, like all genuine efforts to understand agriculture and how it is contributing to GHG emissions in Ireland, we first have to walk the land.

On our tour of the farm, we observe Reegan's herd of suckler cows and their offspring calmly grazing in a cordoned off piece of grassland. Reegan explains how he moves the herd every four or five days to different fields to let the grass regenerate in each pasture. He keeps his cows for a number of years and sells the calves between September and November each year.

Growing new crops on partially rewetted grasslands could allow a new generation of carbon farmers to reduce emissions whilst also producing food

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As we move from field to field, Reegan speaks about his plans to put in a multispecies sward (an alternative to the fertiliser-hungry mono-species ryegrass) into one field currently left ungrazed as part of the **Agri-Climate Rural Environment Scheme**. These multispecies swards – rich in nitrogen-fixing clover and other wild plants – are becoming popular on farms across Ireland as a means to cut back on expensive artificial fertilisers while reducing polluting runoff to nearby rivers.

McMillan explains that the farm carbon project looks at every aspect of each farm through a biodiversity, clean water and carbon lenses.

"We look at everything – hedgerows, fields, peatlands and each farmer picks what to do on their land," says McMillan. On the Reegan farm, dead ash trees in hedgerows will be replaced with oak, cherry and other native species in the autumn.

The 23 farms signed up for the farm carbon initiative are mainly beef farms, big and small, as well as two organic dairy farms. Some are managed on a part-time basis. Each farm has an area of peat grassland and all are within the catchment of the Camcor, Little Brosna and Silver rivers.

The bog showing the biodiversity ponds, blocked drains and wetland crops on the farm.
Photograph: *John D Kelly*

McMillan, whose has a doctorate in environmental science, set up **Green Restoration Ireland Co-operative** in 2019 to work with communities and farmers to find solutions to restore biodiversity and fight climate change. The farm carbon initiative is one of its projects, as is ongoing restoration of four raised and blanket bogs in Co Mayo.

As we move on to the drained peatland pastures (or peat grasslands as they are also known) on the Reegan farm, we discuss the vociferous debates which recently led to the removal of rewetting targets from the forthcoming European Nature Restoration law.

"The biggest misconception is that we are rewetting the land. What we are doing is raising the water table on peatlands," says Reegan. Having worked with farmers on land drainage schemes in the 1970s, he understands the concerns about losing reclaimed land.

But, more recently, he has observed how some drained peatlands are become further degraded, making them less suitable for grazing so he's interested in experimenting with new methods which can create new income streams for farmers while reducing emissions and protecting the natural environment.

The innovative aspect of the Farm Carbon initiative is that it offers farmers opportunities to partially rewet their peat grasslands at levels that allow grazing to continue. Drains can be temporarily unblocked if fields become over-saturated with water.

"Peat grasslands are a big source of carbon. They release 10 times more carbon than bog lands because the water table goes deeper and as a result emits more carbon. So the deeper the drains are on these peaty soils, the higher levels of carbon dioxide emissions," explains McMillan.

***Donie Reegan** and **Doug McMillan** with some of the wetland crops including rhubarb and blueberries.*
***Photograph:** John D Kelly*

In the farm carbon project, the farmers decide how much they want to raise the water table on their lands. "For example if the water table is raised from minus 60cm to minus 40cm, there is no impact on the grassland," explains McMillan. Researchers from the University of Galway and Teagasc are monitoring the water levels on the farms while McMillan predicts the reduced carbon emissions.

Growing new crops on these partially rewetted grasslands could allow a new generation of carbon farmers to reduce emissions while also producing food.

For example, on the Reegan farm, there are trial plots of wetland crops including blueberries, cranberries, mint, watercress, broccoli, cauliflower, cabbage and sphagnum moss. There are also trials for multispecies swards specifically for peatlands. The crops are irrigated with a solar panel water pump drawing water from the blocked drains.

McMillan is particularly excited about the cultivation of sphagnum moss. "It can be used as a replacement for peat moss for horticulture and many other degraded cutaway bogs could be inoculated with sphagnum as a future crop," he explains.

Adrian Egan, who is a self-employed plumber and part-time farmer from Co Offaly, is also involved with the farm carbon initiative. "I've learned more about bogs in the last two years than the rest of my life and how much more you can do with them for sustainable food production," he says. Egan believes children should be educated on the value of bogs for carbon storage and wetland crops. "I'm enjoying my farm more now as I learn about the plants and birdlife on the ponds. In the future, I'd like to be living off the land, producing my own food and renewable gas from food waste."

McMillan also suggests that trees such as black poplar, dawn redwood, aspen, swamp cypress and alder which all grow in water, could be grown for commercial timber in rewetted bog lands.

Hummock of red bog moss heathers, bog cotton and reindeer moss on the wetland bog.
***Photograph:** John D Kelly*

"Forty eight per cent of all forestry in Ireland is on drained peatlands. Rewetting these lands would kill the trees that are there now but if these bog lands were rewetted, they could be planted with trees which grow in wetland conditions," he says.

McMillan believes that paludaculture (wetland) crops and wetlands forestry could be developed on other peatlands throughout Ireland as new sources of income for farmers, both from the crops and the carbon sequestration on the rewetted bog lands.

"It also makes the farm more climate resilient as rewetted bogs can release water on to other fields that need it. The Dutch found that during hot summers, they got one third more grass on shallow drained fields than on deeper drained fields," he explains.

Meanwhile, the blocking up of drains on the Reegan farm has resulted in a series of ponds emerging which have become a haven for wildlife. Donie and Colette Reegan have been enjoying the dragonflies, butterflies and ducks on the pond and Donie plans to build a raised hut so that his grandchildren can observe the birds and insects from a height.

As we continue our walk on the bog itself, Reegan explains that – apart from sections which have turbary rights (the right to cut turf or peat for fuel) – most farmers view this as wasteland.

But, listening to McMillan talk about how if restored, this bog could move from being a carbon emitter to a carbon store, possibly attracting visitors like Abbeyleix Bog in Co Laois, it no longer seems like a worthless wasteland.

Currently, the farmers signed up for the farm carbon project are paid for various initiatives they take on. But, securing long-term funding for carbon farming remains an issue. McMillan talks about how an "Irish peatland code" is being developed which will measure emissions reductions for sale on a future carbon market.

Christian Holzleitner, head of unit of land economy and carbon removals at the European Commission Directorate-General for Climate Action, also spoke recently about these so-called voluntary carbon markets which could attract companies keen to offset their carbon intensive activities. "New funding models are currently being worked on for carbon farming," he told delegates at the launch of National Economic and Social Council's new report on the **Just Transition for Agriculture and Land Use**.

Perhaps, in the future, we will look back at these midlands farmers as pioneers of carbon farming and wonder why it took us so long to strike the balance between protecting agriculture and the natural environment at the same time.