



The Teagasc Signpost Programme is a key part of the strategy to cut greenhouse gas emissions in Irish farming.

Help the environment – and boost farm profits

Over 17,000 farmers are working with Teagasc's Signpost Advisory Programme to reduce greenhouse gas emissions

Tom O'Dwyer
Head of Teagasc Signpost Programme



George Ramsbottom
Teagasc Signpost Advisory Programme Manager



The Teagasc Signpost Programme has three parts. Firstly, a network of 125 'Signpost Farms', which adopt research-based climate mitigation strategies and share their knowledge through farmer-to-farmer learning.

The second component is the Signpost Advisory Programme. Advisors visit farms on request and work with farmers to calculate the farm's GHG emissions. They do this using the AgNav computer program, which combines data from Teagasc, the Irish Cattle Breeding Federation, and Bord Bia. They then help the farmer to create a plan of actions to reduce those emissions. The twenty advisors

are targeting a total of 50,000 farmer participants.

The third component is the National Agricultural Soil Carbon Observatory (NASCO), an on-farm research initiative focused on understanding soil carbon sequestration (capture and storage). The Signpost Farms play a vital role in NASCO, contributing to the research that will shape future climate action strategies.

AgNav

Teagasc's Signpost climate advisors use AgNav to estimate the impact of actions taken on GHG emissions reduction. Examples are listed in Table 1.

Table 1: The impact of actions taken on example dairy and dry stock farms.		
Farm type	Action	Change in farm GHG emissions
Intensive dairy farm	Switching fertiliser N type ¹	8.4% reduction
	Reducing fertiliser Nitrogen by approx. 1/3 ²	4.4% reduction
Intensive suckler to finishing farm	Switching fertiliser N type	2.6% reduction
	Reduce slaughter age by one month	1.6% reduction
	Reduce cow age at first calving ³	5.5% reduction
¹ From CAN to protected urea.		
² Reducing fertiliser N by 80 kg N/ha to 138 kg N/ha – farm will need to grow clover to fix N instead of fertiliser N.		
³ Reducing age at first calving from 36 months to 24 months of age.		

The reduction in GHG emissions is higher on a dairy farm because of the greater reliance on fertiliser N to support forage production. Reducing age at first calving was the single most impactful action on the suckler farm. All actions examined will reduce production costs potentially increasing profit. Sadly, there is no magic solution and multiple actions are necessary on individual farms to significantly reduce GHG emissions.

Greenhouse gas emissions trends

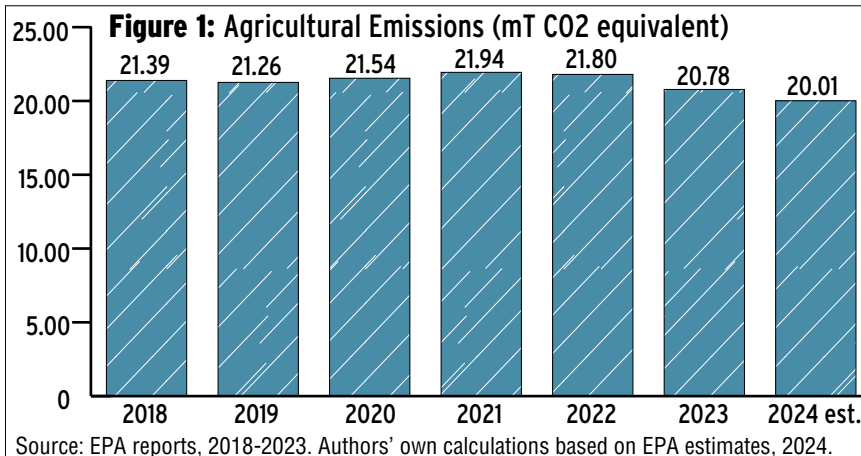
Compared to the base year 2018, national greenhouse gas emissions from agriculture rose between 2020 and 2022 but declined in 2023 and are estimated to have declined further in 2024 as illustrated in Figure 1. A reduction in fertiliser N use was responsible for much of the recent decline in GHG emissions. The challenging goal for the agriculture sector is to reduce 2018 Greenhouse Gas emission levels 25% by 2030.

Three of the most widely selected actions by farmers in Signpost are:

- **Greater use of NBPT protected Urea** Between 2018 and 2024, protected urea application increased from 1% to 18% of fertiliser N used nationally. The goal is to increase protected urea use to 90%.

- **Lime application** Lime application increased from 1m tonnes in 2018 to 1.6m tonnes in 2022 but declined to 1m tonnes used in 2023 and 2024 possibly because of adverse weather in both years. Teagasc aims to increase the quantity of lime spread to 2.5m tonnes nationally.

- **Clover** Over 20% of farmer participants in the Signpost Advisory Programme plan to incorporate more clover into their swards. This will



allow them to reduce fertiliser N. Of the three most frequently selected actions, this is potentially the most challenging. It requires excellent grassland management and optimal soil fertility.

Industry partnership

Over 1,000 one-to-one consultations have been held as part of the Dairygold-Teagasc Environmental Partnership through the Grassroots Sustainability Programme.

The programme helps Dairygold suppliers improve their environmental footprint by updating farmers on nutrient balance and greenhouse gas emissions using the AgNav system. Advisors also discuss water quality risks present on farms and create action plans to reduce nutrient loss, emissions, and improve biodiversity.

Nearly 95% of Dairygold's dairy suppliers are participating in the Programme. Similar collaborations are being finalised with other milk processors.

The GHG emissions coming from

Irish agriculture are heading in the right direction.

We encourage all farmers to attend the events that will take place throughout 2025 on Signpost Farms and to join the Signpost Advisory Programme to establish a plan for their farm to cut costs and reduce emissions. If you are interested contact your local Teagasc office which will put you in contact with a Signpost advisor.

More information

The Teagasc Signpost programme was launched in 2021, and has over 60 partners including milk and meat processors, farm organizations, the Department of Agriculture, Food and the Marine, and Bord Bia. For more information on the programme visit [Teagasc's Signpost Programme](#).



CASE STUDY: Victor Graham, Augharue Bilboa, Co Carlow

Victor Graham who farms near Augharue Bilboa in Co Carlow, has worked with his Teagasc Signpost advisor Eoin Woulfe to create a Farm Plan which will help reduce Greenhouse Gas emissions on his 120 cow dairy unit

"Using protected urea, lime where needed, and greater use of clover, are in my plan," says Victor. "We have had no problem with the quality or performance of protected urea.

There was always some clover in the seed mix but I want to increase that in the future which should eventually allow us to reduce our nitrogen.

Milk solids and selective breeding Working with his local Teagasc advisor, Emily Gowing, Victor is increasing milk solids per cow by using selective breeding to raise herd EBI.

"That's something we would be doing anyway, but it's part of the plan," says Victor. "Signpost also encourages steps which help the environment more broadly so I have begun planting more native hedges to enhance biodiversity as part of the plan.

Pollinators

"Flowering hedgerows are vital to the survival of pollinators providing food, shelter and transport corridors," says

Eoin Woulfe, Victor's Signpost advisor. Victor adds: "Hedgerows and trees on the farm also increase the amount of carbon stored in the soil. These are all things we want to be doing. The



Victor Graham with his wife Marion and daughters Ella, Leanne and Dawn.



A lapwing in breeding plumage: the bird species' numbers in Ireland have declined by over 90% since 1980.

PHOTO: Andrew Kelly

Machair sites key to lapwing revival

Farmers on rare coastal soils along the west coast are collaborating with ecologists on a national/EU project to boost the numbers of an iconic bird species

Joanne Devaney
Teagasc Machair
Specialist



Did you know that the lapwing is Ireland's national bird? It was designated so as recently as 1990 by the Irish Wildlife Conservancy. From a distance it appears black and white but a closer view reveals iridescent dark green and a bronze colour which could at a pinch be described as orange.

With its signature crest extending upwards from its head the wader will be familiar to anyone who grew up in the countryside of the 1950, 60s or even the 70s.

Lapwing like to nest in damp, well-grazed fields with a moderately short grass cover, particularly close to open water where chicks can feed. While the squeaky peewit call of the lapwing was once a familiar sound across the Irish countryside, today it is rarely heard.

The lapwing is red-listed on the Birds of Conservation Concern in Ireland, alongside other once-familiar breeding waders like the dunlin and redshank.

These birds nest on the ground in relatively short grass fields—leaving them wide open to predation from ground and avian predators, and disturbance from human activity.

According to Ireland's 2019 Article 12 Birds Directive report, the populations of lapwing, dunlin and redshank have each declined by over 90% since around 1980. These declines are due to a number of factors including changes in agricultural practices,

predation, and recreation.

Machair and coastal systems now support a significant proportion of the remaining breeding wader populations in the country.

Machair is a rare coastal habitat only found in Ireland and Scotland. It's made up of low-lying grassy plains near the coast, usually backed by wetland or peatland on one side and sandy dunes or beaches on the other.

Low intensity farming

These unique soils and landscapes evolved under generations of traditional, low-intensity farming practices – seasonal grazing, mixed livestock, and minimal inputs. Farming on machair sites has changed considerably, with a general shift from cattle to sheep in many areas and an increase in stocking rates.

The timing and duration of grazing has also changed, affecting the habitat quality and ability to support breeding waders. Increased recreational activity and tourism use have also caused deterioration and loss of habitat.



continued
on page 23

Six-year LIFE project aiming to restore Ireland's machair systems

LIFE on Machair (LOM) is a six-year EU funded project running from 2022 to 2028 which works with farmers, landowners and local communities to help protect and restore Ireland's machair systems

There are over 3,000 hectares of machair within the project area across nine sites. Most of the sites support a small population of less than 20 pairs of breeding waders.

Working with local landowners and farmers, LOM has installed temporary electric fences at five sites. Four fenced areas are 2-2.75ha in size, and the fifth is a large 8ha temporary fence area being trialled in Achill, county Mayo. The fences remain up during the breeding season for lapwing and other waders in Ireland, which migrate from France and Iberia to breed and fledge chicks between February and July.

The fences are designed to deter ground predators such as foxes and badgers, but can also help to keep people, dogs and vehicles from disturbing nests during this critical time. Success for lapwing and other waders is when at least one egg from each nest of four survives. The vulnerable period includes four weeks of incubation, two weeks as a chick, and 3-4 more weeks growing and learning to fly.

Jackie Hunt, ecologist with the LOM project, says that: "Indications are that numbers of fledged lapwing are improving slightly at most project sites." This should mean more birds will join the breeding population. For example, at 'The Valley' on Achill Island, just one lapwing chick fledged in both 2022 and 2023. But in 2024, after a series of changes, 15 chicks successfully fledged, which is a huge turnaround.

Even better, dunlin—a species with fewer than 20 breeding pairs left in all of Ireland—bred at the site for the first time since 1996 and successfully fledged two young. One major factor in Achill was the installation of temporary electric fencing around key breeding areas.

The success of these temporary predator fences is only possible thanks to the cooperation and knowledge of local farmers. As Jackie puts it: "We're not just fencing for birds—we're talking, listening, and walking the ground with farmers. They are the ones who know the land, how animals move, and how grazing works."



Farming on Machair

Farmers have been a critical component in the success of the LOM project so far, and they want to be part of the conversation on future agri-environmental policy going forward for their machair grasslands. Some of these areas are commonage, and some are privately owned.

For some farmers, only a corner of their holding is machair, and for others it's their entire farm. The implications of practice change for different farming systems can differ significantly.

The project has set up 5m x 5m grazing exclosures to demonstrate the effects of different grazing regimes on plant structure and habitat. It is providing valuable insights for farmers and advisors on the effects of winter grazing, summer grazing, and lack of grazing.

Michael McGreal, a hill sheep farmer involved in the LOM project at Dooaghtry

near Louisburgh, Co. Mayo, says: "The machair site is an important part of my farm, and I would like to see the wader bird populations succeed and continue returning to the site. More needs to be done to protect these birds, as they are quite vulnerable to a wide range of predators."

The LIFE on Machair project will continue supporting local engagement, habitat restoration, knowledge exchange, and education. And while the project brings new tools and science, the heart of it is local knowledge and shared stewardship.

Farmers along the west coast aren't just caretakers of livestock—they're caretakers of some of Ireland's famous landscapes and the wildlife that depend on them. With the right support and understanding, we can bring back the lapwing—and the spring chorus that once defined rural Ireland.