

# THE SIGNPOST PROGRAMME

*Farmers for Climate Action*



Climate Smart

Uncertain Future

*The Signpost Programme is a collaborative partnership of farmers, industry and State Agencies, working together for climate action. For further details of the partners please refer to [www.teagasc.ie/signpost](http://www.teagasc.ie/signpost)*



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### Partners



### Government, State Agencies and Sponsors



### Supporters





## What is the Signpost programme?

The Signpost programme is a multi-annual campaign to lead climate action by all Irish farmers, and achieve early progress in reducing gaseous emissions from Irish agriculture (while also improving water quality, maintaining (and in some cases improving) biodiversity, reducing costs and creating more profitable and sustainable farming enterprises. It will also act as a test bed for on-farm carbon sequestration measurements so that this can, in time, be taken into account by the EPA in the national Greenhouse Gas inventory. It is a collaborative programme, led by Teagasc and including all relevant industry partners and state bodies such as Bord Bia.

## What are the objectives of the programme?

- 1) To lead and support the transition of Irish farming towards more sustainable farming systems;
- 2) To reduce agricultural emissions, specifically,
  - To reduce GHG emissions to the range 17.5 – 19.0 MtCO<sub>2</sub> eq. by 2030; and
  - To reduce ammonia emissions by 5% below 2005 levels, currently estimated at 107.5 kT NH<sub>3</sub>, also by 2030;
- 3) To reduce other negative environmental impacts of agriculture (specifically, to improve water quality and to improve biodiversity); and
- 4) To reduce costs and improve margins from farming.

## What will the elements of the programme be?

There are two elements to the programme. Central to the programme will be a network of **Signpost Farms**, which will act as demonstration farms for the programme and sites for carbon sequestration measurements. These will point the way forward towards climate smart farming, and will be central to the second element, **the Signpost Advisory campaign**, which will engage with all farmers and support them to move towards more sustainable farming systems.



# The Signpost Programme

## Campaign for Change



The Signpost Farms will:

- (1) showcase the science based technologies which can reduce agricultural emissions;
- (2) act as “hubs” for the Signpost Advisory campaign; and
- (3) create a national network of farms where carbon sequestration in grassland and hedgerows can be examined.

The Signpost Advisory campaign will mobilise all advisers (Teagasc, private and industry) to engage with all farmers, using a combination of channels, in climate action.

## How will the programme be designed?

Teagasc will design the Signpost programme with four guiding principles in mind:

- We want to involve all of the agricultural industry around this initiative in a **collaborative approach** to bringing about behaviour change;
- We want to **build on the existing knowledge base and current industry initiatives**, while avoiding duplication;
- We want to involve farmers, and other stakeholders, in the process – to that end, we will use a **living lab co-design approach** to ensure that the solutions for climate action are fit for purpose, meet farmers' needs and are usable; and
- We want to ensure that farming systems are **future proofed**.

Finally, while the need for climate action has been the stimulus for the initiative, the Signpost programme will adopt a holistic approach to sustainability i.e. addressing all four elements of sustainability – economic, social, environment and innovation.



## How will the Signpost Farmers be chosen?

Teagasc currently supports a network of dairy demonstration farmers through our existing joint farm development programmes with milk processors. These farmers have been enrolled in the Signpost programme, beginning in autumn 2020. In addition, we anticipate inviting a number of additional farmers to join the programme to ensure that the diversity of dairy farmers is represented in the final network of dairy Signpost farmers.

Teagasc is currently enrolling farmers from other sectors – beef, sheep, tillage and mixed enterprise – in the Signpost programme through 2021. For example, demonstration farmers participating in the Green Acres Calf to Beef programme will be enrolled. The Teagasc BETTER sheep programme farmers have been enrolled. The Teagasc research, college and demonstration farms are included. Teagasc will also identify a number of mixed enterprise farms to become Signpost farmers to highlight the potential of the circular economy.



## What type of climate actions will Signpost Farmers engage in? How will a Signpost Farmer know that he/she is making progress in reducing their gaseous emissions and reducing their environmental footprint?

Teagasc will work with the Signpost Farmers to reduce their environmental footprint, while also improving both the profitability and sustainability of their farming businesses.

While the solution for each farm will be somewhat different (and will be tailored to suit the individual farmer and his/ her farm), we expect that the dairy Signpost Farmers will be striving to achieve the type of targets listed in **Table 1**, with the beef and sheep Signpost Farmers aiming to achieve the targets listed in **Table 2**. Of course, Teagasc Advisers will work with and support the Signpost Farmers as they change how they farm.

It is envisaged that a Farm Sustainability Plan (FSP) will be created with each Signpost farmer – identifying areas for improvement and action. All farmers will also receive a Farm Sustainability report at the end of each year – benchmarking their progress, against their starting point, other Signpost farmers and the targets set for the farm. The data collection and analysis methodology of the National Farm Survey will be used for recording, analysing and reporting on both individual and overall performance.

**Table 1: Indicative Key Indicators of Success (KIS) for Dairy Signpost Farms**

Area	Target
<b>GHG Emissions</b>	<ul style="list-style-type: none"> <li>Reduce GHG emissions per kg milk solids produced</li> </ul>
<b>Pasture productivity &amp; stocking rate</b>	<ul style="list-style-type: none"> <li>Identify and reseed unproductive swards – target an increase of 2 tDM/ha utilised over 5 years</li> <li>Stock the farm appropriately: &lt; 250 kg org. N/ Ha (whole farm)</li> </ul>
<b>Reduced fertiliser use</b>	<ul style="list-style-type: none"> <li>Reduce chemical N fertiliser usage by 10% over 5 years</li> <li>Increase sward clover content to 20% over 5 years</li> <li>Spread at least 50% of chemical N as protected urea and all slurry using LESS</li> </ul>
<b>Optimum soil fertility</b>	<ul style="list-style-type: none"> <li>90% of soils to have optimum soil fertility status</li> <li>Adhere to NMP to correct soil deficiencies</li> </ul>
<b>Adequate slurry storage</b>	<ul style="list-style-type: none"> <li>16, 20, 22 weeks slurry storage to be available for all livestock (depending on location)</li> <li>No spreading during closed period</li> </ul>
<b>Replacement rate</b>	<ul style="list-style-type: none"> <li>Target 18-20% for stable herd</li> <li>Target 4.5 lactations herd average lactation number</li> <li>Increase EBI by €10 per year</li> </ul>
<b>Concentrate CP %</b>	<ul style="list-style-type: none"> <li>Reduce concentrate CP% to 14% (main grazing season)</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>Target 10% of high value biodiverse area per farm</li> <li>Increase quantity and quality of biodiversity on the farm</li> </ul>
<b>Costs &amp; returns</b>	<ul style="list-style-type: none"> <li>Reduce costs/save money</li> <li>Target net profit &gt; €800 per cow or &gt; €2,000 per ha</li> </ul>

**Table 2: Indicative Key Indicators of Success (KIS) for Beef & Sheep Signpost Farms**

Area	Target
<b>GHG Emissions</b>	<ul style="list-style-type: none"> <li>Contribute to the national reduction of GHG emissions from farming</li> <li>Reduce GHG emissions per kg carcass weight produced</li> </ul>
<b>Pasture productivity &amp; stocking rate</b>	<ul style="list-style-type: none"> <li>Identify and rejuvenate unproductive swards</li> <li>Increase grass utilisation, while matching stocking rates to grass production</li> </ul>
<b>Reduced fertiliser use</b>	<ul style="list-style-type: none"> <li>Reduce chemical N fertiliser usage by 10% over 5 years</li> <li>Increase sward clover content to 20% over 5 years</li> <li>Spread at least 35% of chemical N as protected urea and all slurry using LESS</li> </ul>
<b>Optimum soil fertility</b>	<ul style="list-style-type: none"> <li>90% of soils to have optimum soil fertility status within 5 years</li> <li>Correct soil P &amp; K levels in high output fields to Index 3 e.g. silage fields; match soil P &amp; K levels in grazing fields to stocking rate</li> </ul>
<b>Winter feeding</b>	<ul style="list-style-type: none"> <li>Target higher quality grass silage (DMD &gt;70%)</li> <li>Target weanling performance over the first winter of at least 0.6kg ADG</li> </ul>
<b>Adequate slurry storage</b>	<ul style="list-style-type: none"> <li>16, 20, 22 weeks slurry storage to be available for all bovines (depending on location)</li> <li>No spreading during closed period</li> </ul>
<b>Breeding</b>	<ul style="list-style-type: none"> <li>Target 20%/24% herd/ flock replacement rate for a stable herd/ flock</li> <li>Select only high Euro-star index rams</li> <li>Increase the Beef Repl. Index in the suckler breeding herd by €5 per year</li> </ul>
<b>Herd &amp; flock health</b>	<ul style="list-style-type: none"> <li>All farmers to have a detailed herd/ flock health plan in place</li> <li>Target increased vaccination and reduced antibiotic usage on farm, with anthelmintics used in response to faecal egg test results</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>Target 10% of high value biodiverse area per farm</li> <li>Increase quantity and quality of biodiversity on the farm</li> </ul>
<b>Costs &amp; returns</b>	<ul style="list-style-type: none"> <li>Reduce costs/save money</li> <li>Net margin &gt; €200 per LU or &gt; €500 per ha</li> </ul>



## How will the Signpost programme engage all farmers?

*The Signpost Advisory campaign will be the second element of the Signpost programme.*

The Signpost Advisory Campaign will **mobilize advisers** (Teagasc, private and industry) **and teachers** to engage with both farmers and students in climate action.

We will adopt a hybrid or **blended approach** to training, using both traditional and digital approaches. The traditional will consist of the “tried and tested” development approaches of short training courses, events, discussions groups, one-to-one consultations and media. The roll out of a **training programme**, initially for advisers, consultants and other rural professionals and then for all farmers, will form a key part of Signpost Advisory. We anticipate that this training course will enable farmers to identify appropriate climate actions for their farms; farmers can then work with a trained adviser to develop a Farm Sustainability Plan (FSP) for their own farm.

Teagasc intends to investigate the use of a **digital learning** approach to raising awareness of and bringing about climate action. We would like to explore with our Signpost partners how best to roll out training to their suppliers, and are willing to consider adjusting our approach depending on partner requirements. In this regard, we would like to explore with partners how suppliers could be motivated to engage with digital learning.

We will build on our existing knowledge

resources to develop a **dedicated website** (a so-called “one-stop shop”) for climate action. We will also create a rich and varied digital learning resource, potentially including podcasts, videos, micro-learning resources and online self-assessment tools. Learning materials will be developed using a co-design approach.

We will establish a **communications database**, and issue **targeted communications** on a regular basis. We will seek to leverage both Teagasc and partner networks/communications channels to extend climate action messages.

Finally, Teagasc and Bord Bia have put in place an agreement on developing a communications strategy from the Signpost Programme to support the reduction of agricultural emissions.





## What is the Signpost Farm Sustainability Plan?



Each Signpost farmer will be supported to create a farm specific action plan. While the primary focus will be on the identification of farm specific actions to reduce gaseous emissions, actions to improve both water quality and bio-diversity will also be included. Progress towards the achievement of the agreed targets will be reviewed on an annual basis between the Signpost farmer and his/ her adviser.

It would be extremely resource intensive to complete a Farm Sustainability Plan for all farmers. Consequently, Teagasc will explore how the plan could be adopted to create an online self-assessment tool for use by the wider population of farmers, based on experiences with the use of the FSP with the Signpost farmers initially. We would extend the usage of the FSP through a large scale training programme, involving all Teagasc Advisers, other rural professionals and targeting all farmers.

## What is Soil Carbon Sequestration?

Soil carbon sequestration is a process in which CO<sub>2</sub> is removed from the atmosphere and stored in the soil carbon pool. This process is primarily mediated by plants through photosynthesis, with carbon stored in the form of soil organic carbon. Irish grassland has the potential to store carbon below ground in roots and soil. However, there is still large uncertainty surrounding baseline soil C values and verifying the strength and permanence of carbon sequestered in different soil fractions. A key part of the Signpost programme will be to quantify the baseline and the changes in that over time.

## What plans has Teagasc to measure soil C sequestration?

Teagasc is planning the establishment of a National Agricultural Soil Carbon Observatory to provide the knowledge required on soil carbon sequestration. The Signpost farms will be an integral part of this Observatory. Deep soil samples will be taken on the Signpost farms to establish baseline soil carbon levels, with the sampling process repeated in a number of years' time to monitor any changes.

In addition, flux data from long-term eddy covariance towers will provide detailed information on carbon exchange at an ecosystem level; these towers will be located on a subset of the Signpost farms.



## What about biodiversity? What about C sequestration in hedgerows?

Biodiversity will be an important element of the FSP, with key actions to be undertaken on each farm outlined in the Plan. It is also envisaged that a LiDAR survey will be undertaken on each Signpost farm at the start and end of the Programme so that C sequestration in hedgerows can be quantified.



## Is the Signpost programme linked to ASSAP? Why can't ASSAP just be expanded?



ASSAP is targeting a number of water quality hot spots, and involves the dairy industry as partners. The Signpost programme needs to target the whole country and will involve all sectors. Also, water quality is a different issue which is being dealt with in ASSAP by identifying and advising on specific problems on specific farms, whereas GHG emissions need to be addressed on all farms. Nevertheless, the two programmes will link closely, and each Signpost farmer will be visited by an ASSAP water quality adviser and any recommendations will be incorporated into the FSP for that farm.

## What about linkages with other Teagasc programmes, including research projects?

Teagasc will seek to link and integrate the Signpost programme with other initiatives e.g. the Grass10 campaign, our joint programmes with industry partners and new research projects in areas of climate action. For example, a new research project

looking at the establishment of grass clover swards has commenced in 2021; a number of the Signpost farms have been enrolled in the project, while Grass10 will promote the lessons from the project with the wider farmer population.

## What is the role of Bord Bia?



The Origin Green Quality Assurance (QA) schemes could be an important part of the plan to reach out to all farmers. As outlined above, Bord Bia will be a partner in the Signpost programme. There is an overwhelming need to promote climate action and the widest possible adoption of the MACC technologies across the entire farming community. Bord Bia, through its Origin Green farm-based initiatives can support the scaling of the Teagasc initiatives. Their expertise will be harnessed in developing the messaging and communications around the programme, and they will use the very existence of the programme in their international marketing of Irish food.

**BORD BIA**  
IRISH FOOD BOARD

## What partners are involved in the Programme?

The Signpost Programme is a partnership of over 30 companies and organisations, including all of the dairy and meat processors, farm organisations and relevant State Agencies, from the Irish agri-food sector. A list of the participating partners is presented on page 2. It is envisaged that that further partners will be added, including partners from the tillage and pigmeat sectors.

Teagasc recognises that the objectives of the Signpost programme can only be achieved through collaboration, and we will continually engage with our partners and stakeholders to maximise their contributions to all aspects of the various work programmes that will be part of the overall Signpost programme. We will strive to ensure that the programme is aligned with their requirements.

Specifically, we will look to:

- adopt a partnership approach to training delivery;
- leverage existing communications channels to raise awareness of both the need for climate action and opportunities for training and support;
- provide training opportunities for their people; and
- leverage their expertise, market insights and farmer linkages to accelerate the pace and scale of change.

### Where can I get more information?



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