

## 2022 Masters in Agricultural Innovation Support

### Project Summary

#### 1. Project Title and Associated Programme

KT Programme	Signpost Programme
Project title	<b>A multi-actor, local approach to increasing lime usage on Irish farms</b>

#### 2. Project background

Currently 45% of agricultural soils in Ireland have suboptimal soil pH levels<sup>1</sup> which is a major impediment to increasing nutrient use efficiency on farms. While the agronomic benefits of optimising soil pH are widely known, more recently lime applications have been shown to significantly reduce GHG emissions as nitrous oxide (N<sub>2</sub>O) by up to 40% on managed grassland soils. This is a GHG mitigation technology that can be captured in the national GHG inventory. The Governments Climate Action Plan<sup>2</sup> has set a target for future lime use. As a key climate mitigation action in the Teagasc GHG MACC<sup>3</sup>, increasing lime use by Irish farmers is a key target for the Signpost Programme.

A recent MAIS study<sup>4</sup> on lime use in Ireland has identified poor communication between farmers and the various actors within the lime supply and technical advice chains as a key barrier to adoption. Large regional differences in lime use exist and lack of tailored messaging, local knowledge and linkages between these various actors are limiting lime use. This proposed study aims to leverage this new knowledge and to develop, implement and evaluate a template for facilitating communication and action towards increasing lime use within the Signpost farm network.

#### 3. Project aims and objectives

The overall aim of this project is to understand the reasons why Irish farmers are not adequately addressing low soil pH, and to propose measures and multi-actor approaches to improve uptake of liming materials on Irish farms.

The specific objectives of this task are,

- to understand the connections and disconnections between the different cohorts of farmers and the different actors in the lime advice, sales and supply chain;
- to use an open innovation approach to engage the key actors in a specific location facilitating communication and knowledge exchange between them;
- to test the use of the Multi-actor Toolbox<sup>5</sup> in developing an action plan to improve lime usage with the Signpost farm programme.

<sup>1</sup> Teagasc, 2021, National soil fertility trends 2021

<sup>2</sup> <https://www.gov.ie/en/publication/6223e-climate-action-plan-2021/>

<sup>3</sup> <https://www.teagasc.ie/media/website/publications/2018/An-Analysis-of-Abatement-Potential-of-Greenhouse-Gas-Emissions-in-Irish-Agriculture-2021-2030.pdf>

<sup>4</sup> Mulligan, C., Gorman, M., Plunkett, M., Wall, D.P. (In prep) Advisory and Knowledge Transfer tools and processes for Lime and Nutrient Management Practice Adoptio. FaSTEN project

<sup>4</sup> [https://www.teagasc.ie/media/website/about/farm-advisory/Multi-Actor\\_Toolbox.pdf](https://www.teagasc.ie/media/website/about/farm-advisory/Multi-Actor_Toolbox.pdf)

<sup>5</sup> <https://www.teagasc.ie/media/website/publications/2021/Teagasc-Statement-of-Strategy.pdf>

- to use the lessons from this pilot approach to propose how extension approaches might be strengthened to better align with farmers understanding to increase adoption of liming.

#### 4. Suggestions for methodology (max 150 words)

Plan, implement and evaluate

- Identify a small number of sites/ regions surrounding a lime quarry for this study. Establish annual lime sales (tonnage) in the study region.
- Establish a multi-actor network, including farmers (with low soil pH), advisers (Teagasc and private), researchers, Signpost partners (co-op advisers, farm organisations, banks), contractors and lime quarry representatives for each area selected.
- Working together, the multi-actor network will discuss the challenge (low lime usage, poor soil pH) and co-design a solution for their local situation. The Teagasc Adviser, accompanied by the Masters student, will act as facilitators for the process, playing key roles in activating and mobilising the multiple actors over the project lifetime and making use of the Multi-actor Toolbox.
- Farmer-to-farmer learning will be facilitated through network meetings, photos, WhatsApp group chat, demonstrations etc.
- Monitor changes in annual lime sales from the partner quarry.

#### 5. Expected Impact of the Project

The new Teagasc Strategy (2021 – 2024) identifies an overarching strategic goal of making sustainability “front and centre of all Teagasc activities”. Enabling Irish farmers to both mitigate GHG emissions will be central to Teagasc Knowledge Transfer over the next decade. Indeed, the Signpost Programme was established by Teagasc (2021) to lead and support Irish farmers in climate action. The Teagasc GHG MACC identifies liming as one of the key mitigation actions required, while also recognising the challenge of delivering the range of mitigation actions (including liming) into practice on Irish farms.

By adopting a multi-actor approach, farmers are centrally involved as partners in the project (and not simply the recipients of advisory messages). The approach goes beyond the “traditional” diffusion of innovations model to embrace an “interactive innovation model” involving a bottom-up approach and linking farmers, advisers, researchers, businesses and other actors in a multi-actor network. The knowledge exchanged will generate new insights and ideas and mould existing tacit knowledge into relevant and usable solutions, thereby fostering economically viable and sustainable agriculture in the study region. The result of the project should be an extensive range of useful, applicable and appealing end-user materials (leaflets, farmer testimonials, short videos etc.) for farmers.