2022 Masters in Agricultural Innovation Support

Project Summary

1. Project Title and Associated Programme	
KT Programme	ASSAP
Project title	**Improving Advisory Services for Better Soil Health on Grassland Farms: Test and develop the Grass Visual Evaluation of Soil Structure (VESS) method as a visual KT tool to promote good soil management.**

2. Project background

Soil is amongst the most critical of resources underpinning our agriculture and food sector. The inclusion of soil health as one of five EU missions under the horizon Europe framework, and the emphasis on its protection within the EU green deal, farm to fork strategy and biodiversity strategy, underlies the importance to both food production and broader society.

Soil compaction has become increasingly more common on moderate to intensive farms, resulting in a loss of production due to reduced soil function and environmental losses. Compaction can increase the risk of phosphorus and sediment loss via overland flow, whilst also create conditions for the potent greenhouse gas Nitrous Oxide to be emitted.

Currently the delivery of knowledge transfer services advising farmers on tools and management practices that will assess and enhance soil health is limited. I have run a number of compaction/soil health discussion groups in the last few years and farmer interest is far outstripping delivery.

This project will assess farmer knowledge in soil health in order to identify knowledge gaps/requirements, carry out Grass VESS testing on 10 farms leaving the farmers with results and a farm soil health plan.

3. Project aims and objectives

This project aims to enhance the capacity of Teagasc KT services to deliver evidence based soil health advice to farmers beyond just nutrient advice. Soil structure directly impacts soil function and Teagasc have carried out a lot of research in this area, however the KT link between the research and the farmer is not sufficient.

This study has the potential to propose a practical service for farmers to better understand and improve soil health.

Project Objectives:

- Assess farmer knowledge in soil health and identify knowledge gaps
- Improve knowledge transfer in relation to soil health with the use of a visual on farm demonstration method to promote best farm management practice.

- Establish the status of soil structural quality in 10 grassland farms through the VESS method
- Introduce and pilot a tool farmers can use to assess soil structural quality on their farm and to identify appropriate mitigation.
- Draw up, with the farmers, a bespoke farm soil health plan/map for each farm

4. Suggestions for methodology

- Literature review on soil health
- Select 10 grassland farms within a dairy discussion group and agree the process with the selected farmers (include a Signpost Farm)
- Train student in Grass VESS
- Facilitate a Discussion group in order to assess farmer knowledge in soil health to Identify knowledge gaps/requirements
- Develop Grass VESS testing plan with each farmer (sample points/location per farm etc.)
- Carry out Grass VESS testing on 10 farms, various contrasting locations on the farm such as silage ground and the grazing block will be selected. If a farmer identifies a problematic area where production may be affected this will be included
- Develop a bespoke farm soil health plan for each farm and discuss with farmer by carrying out soil structure testing a number of areas across each farm using the VESS method. Each area assessed will be scored, recorded and have additional notes attached. A simple plan will be developed including map and recommendations.
- Results presented/discussed to farmers individually & discussion group to promote peer to peer learning
- Present findings to advisors in focus discussion group and identify lessons for advisory methods to improve soil health on farms

5. Expected Impact of the Project

Researchers and policy makers have identified the need to maintain and improve soil health in order to protect food production and enhance environmental sustainability. Unfortunately there is a lack of soil health knowledge, not only at farm level but also within the advisory service.

The focus of this project is to improve soil health knowledge amongst advisors and farmers, giving confidence to implement and encourage behavioural change at farm level.

This can be achieved in line with Teagasc knowledge transfer strategy through research outputs, technology updates, and the development of tools and materials. Training programmes, workshops, demonstrations and discussion groups will play a key role in the promotion of improving soil health across the sector, and this project will enhance the capacity of Teagasc KT to respond to future regulation and policy changes (e.g. soil mission), forthcoming EU soil funding calls, and develop nuanced soil specific advice.