



# TRAINING SYLLABUS

A SUMMARY OF ALL MODULES



AgriCapture CO<sub>2</sub>

## BIOLOGICAL DIVERSITY

MAINTAIN WIDE, HEALTHY ROTATIONS AND ENCOURAGE BENEFICIAL FLORA & FAUNA THROUGH REDUCED ARTIFICIAL INPUTS



## INTEGRATION OF ORGANIC MATTER

UTILISE LIVESTOCK AND COVER CROPS TO BUILD SOIL ORGANIC MATTER



## REDUCED SOIL DISTURBANCE

REDUCE AND OPTIMISE MECHANICAL AND CHEMICAL INPUTS TO IMPROVE SOIL HEALTH AND STRUCTURE

## MAINTAIN LIVING ROOTS

TO BOOST SOIL BIOLOGY, BUILD SOIL STRUCTURE AND INCREASE WATER INFILTRATION

## SOIL PROTECTION

UTILISE CROP RESIDUES AND COVER CROPS TO PROVIDE BIOLOGICAL ARMOUR TO THE SOIL SURFACE AND REDUCE WATER LOSS

# INTRODUCTION TO REGENERATIVE AGRICULTURE

Climate change poses a real and present danger to human society and global biodiversity and habitat – and agriculture is on the front line. Yet not only does agriculture have the potential to act as a net emitter of greenhouse gases, but it also has the potential to act as a net sink through careful management of its biomass and soils.

AgriCaptureCO<sub>2</sub> is an EU Horizon 2020 project consisting of 14 consortium partners across 7 European countries running from 2021-2023. The aim is to develop and launch a commercial software platform that facilitates zero emission aspirations on a large scale, by empowering regenerative agriculture and measuring and monitoring resulting soil carbon sequestration via remote sensing (satellite observation) backed up by robust ground-truthing (soil sampling).

AgriCapture's vision is to develop a systematic, robust & flexible platform for quantifying and promoting soil carbon capture, allowing farmers and other landowners to become 'carbon farmers' and to enable them to engage in carbon trading utilising robust and reliable carbon credits demonstrating strong 'additionality' in agricultural practice – to ensure that positive climate outcomes are being achieved.

As the agricultural lead in the consortium, the GWCT Allerton Project is leading the establishment of a 'European Reg Agri Community' (ERAC) to help farmers adopt more sustainable, regenerative farming practices across the full range of European agriculture, from Cretan olive groves to large-scale arable cropping in Poland. This entails the creation of extensive training resources, videos, podcasts and events to encourage the move toward more sustainable farming practices.

Beneath the 5 core principles of regenerative agriculture, AgriCaptureCO<sub>2</sub> has also agreed a list of 17 regenerative practices, split into 6 key modules:

- |                                    |   |
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| 1. Optimisation of Crop Agronomy   | 4 |
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## Appendix A: Soil

An overview of the soil, soil organic matter (SOM) and soil carbon. Texture, structure, aggregation. Soil chemistry, biology & mechanics. Soil health & risk factors.

# COURSE CATEGORIES AND MODULES



## 1. OPTIMISATION OF CROP AGRONOMY

### 1.1 SYNTHETIC FERTILISER USE

The Haber Bosch process & background to synthetic N. Supply & losses of N, including nitrogen use efficiency. Technologies to optimise N use, cultural methods & best practice.

### 1.2 OPTIMISE SYNTHETIC PPP USE

Understanding the carbon footprint of plant protection products (PPPs), environmental impacts & farmland biodiversity. How to optimise PPP use through an integrated pest management plan and precision applications. Gain knowledge on biopesticides, training and best practice.



## 2. OPTIMISATION OF SOIL MANAGEMENT

### 2.1 REDUCE TILLAGE

Gain an understanding of tillage options and why reduced tillage has a plethora of benefits for soil health and productivity.

### 2.2 REDUCE AND ALLEVIATE COMPACTION

Understanding soil compaction & soil consistency. Strategies to limit and alleviate compaction, both mechanical and biological.



## 3. IMPROVED biodiversity

### 3.1 HABITAT CREATION

Increasing biodiversity for farm benefit, this module will aim to establish the background to farmland biodiversity, ecosystem services and the use of an Integrated Pest Management (IPM) plan to encourage a healthy soil biome and beneficial farmland life.

### 3.2 AGROFORESTRY

This module will contribute to the understanding of agroforestry. The definitions and working examples. This will cover the benefits; productivity, animal welfare, biodiversity, water management, climate change and the environment.

### 3.3 CATCHMENT/LANDSCAPE SCALE COLLABORATION

Why collaborative working is beneficial to achieve greater results on the landscape scale through cooperation and shared actions and research. Using the developing example of UK Cluster Groups and English post-CAP agricultural policy under the Environmental Land Management (ELM) scheme.



## 4. OPTIMISATION OF WATER USE

### 4.1 OPTIMISE WATER MANAGEMENT

From 'Information on irrigation need to better understand calculations and water efficiencies.



## 5. CONTRIBUTION OF OM - ON FARM

### 5.1 FIELD RESIDUE RETENTION

The benefits of field residue retention & their role in improving soil health by reducing erosion, increasing organic matter and retaining field nutrients. Addresses retaining soil moisture and regulating soil temperature.

### 5.3 POLY-CROPPING

An understanding of the definitions of polycultures, examples, benefits and challenges in an agricultural system.

### 5.5 INTEGRATION OF GRAZING LIVESTOCK

Grazing livestock has many benefits, this module will develop understanding of the options to integrate livestock, the benefits for the soil, increasing health and SOM. With an education built around choosing the right herbal lay and grazing management to ensure optimum health. Discussion on fodder crops within a grazing system and the work of the dung beetle.

### 5.2 COVER/CATCH CROPS

Understanding of cover and catch crop, the types, modes of action and differences. The 10 benefits of using cover and catch crops as well as the management challenges they can pose.

### 5.4 STOCKLESS GRASS/GREEN MANURES

Understanding greens manures, their main modes of action, and types. The benefits of green manures, such as increased soil health and fertility.



## 6. CONTRIBUTION OF OM - OFF FARM

### 6.1 ORGANIC MANURES

Definitions of soil organic matter (SOM) and the food web. Why SOM is important, and different types and properties.

### 6.3 APPLICATION OF BIOCHAR

The module will develop an understanding of biochar, how it is made and its role in soil conditioning. The benefits and challenges will be explored including an overview of the biochar/pyrolysis process and the risk of 'carbon leakage'

### 6.2 APPLICATION OF COMPOST

Covers the three phases of composting and processes involved. The impact of composts for SOM. Carbon:Nitrogen ratios, economics and impact on soil structure.

### 6.4 ENHANCED ROCK WEATHERING

This module will delve into detailed definitions of ERW. The benefits of ERW including; sequestration of inorganic carbon, cation exchange, soil nutrition & reduced soil emissions. ERW role within regenerative agriculture and the considerations in practice.