From carbon neutral cropping systems To Climate Neutral Farms



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GRA workshop - Sevilla

1

The project at a glance

"Co-develop and upscale systemic locally relevant solutions to reach climate neutral and climate resilient sustainable farms across Europe"

Demonstrate that **innovative systemic solutions** have the potential to generate positive impacts by 2030

- Achieving climate neutrality of farms and farming systems
 - Reducing GHG emissions
 - Increasing carbon sequestration and storage
 - Consider other climatic effects (albedo change, surface energy partitioning...)



A consortium of 33 partners will interactively integrate and improve existing solutions to achieve economically viable business models in farming systems through a multi-actor approach.





Overall concept

ClieNFarms scope is based on a demonstration approach through the creation of 13S



Innovative

Induces development and adoption of efficient innovation to different elements such as finance; banks; colaborative proposals; etc.



Systemic

Accounts the farm and the surrounding (eco)systems (suppliers; advisers; researchers; etc)



Solution Spaces

Proposes and tailors adaptedsolutions based on local conditions (i.e. pedoclimatic conditions, resources and constraints).



Farm networks from TRL5 to TRL8

Overall concept

sequestration, account for

other climatic effects.

The goal of I3S is to develop business models that ensure the financial sustainability of the solutions, with an upscaling methodology.



TRL 5-6 : Demonstration Farms TRL 7: Lead Commercial Farms TRL 8: Outreach Farms



NFarms

5











A holistic approach to climate-neutral and climate-resilient farming

The I3S network is structured around 6 six major themes to investigate and test solutions:



Livestock (including feeds management, animal management, housings, grass management...)



Carbon sequestration (including soil, humic balance, impact of farming practices on soil carbon sequestration, effect of hedgerows, agroforestry, biochar, albedo...), reduction of GHG emissions from soils, albedo effects...



Integral Environmental sustainability (including biodiversity, risk of nutrients leaching, ammonia emissions, soil erosion...)





Crops and special crops (including fertilization, soil management, crops management, specific mitigation practices, crops rotation...)



Low carbon energy production and

consumption (including fuel and electricity consumption, biogas plant, wooden chips from hedgerows, photovoltaic...)



Other approaches (including circular organization, governance, territorial approaches, value chain, collaboration with other stakeholders...) Creative arena

A short focus on the creative arena





- Create collective intelligence
- Empowerment of farmers
- Spark discussion between stakeholder, an appreciation for each other's points of view
- Gather knowledge on how we can help get solution onto farms
- Lessons learnt from the first creative arena can be provided to help other I3S plan their creative arena



inter	est
Low impact	High impact
High uptake	High uptake
potential	potential
Low impact	High impact
Low uptake	Low uptake
potential	potential



workshop 1 - Ideal farm

Activity 1 - Ideal farm using map and post-its – mixed groups

Activity 2 - Ideal farm using solution cards (uptake line and matrix) – mixed groups

workshop 2 – How can stakeholders help farmers to implement impactful solutions

Activity 3 - Barriers and pre-requisites of high impact solutions

Activity 4 - What do farmers need; what can

stakeholders offer

Plenary

Activity 5 - Plenary discussion on how stakeholders can help farmers implement impactful solutions Activity 6 – How DF can support high impact, low uptake solutions

24th January 2023 at Teagasc, Moorepark,



A short focus on the MRV

• A framework for **carbon sequestration** & GHG reduction in agriculture is under construction at European & international level (certification rules, sources of financement...)



• In this context, and among other things, a methodological framework for MRV is under construction



MRV and predicting

- When designing an MRV scheme, it is important to consider several factors, including data availability and feasibility.
 - **Data availability** refers to the amount and quality of data that is available for use in the MRV scheme.
 - It is important to ensure that there is sufficient data available to accurately
 measure and report on the initiative, and that the data is of high quality and
 can be trusted.
 - Feasibility refers to the practicality and viability of implementing the MRV scheme.
 - This includes considerations such as the resources required to implement the scheme and whether those resources are available, as well as any technical or logistical challenges that may arise.
- Other factors that may need to be considered when designing an MRV scheme **include the goals and objectives of the initiative**, the target audience for the MRV reports, and any legal or regulatory requirements that must be met.



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Demonstrate that **innovative systemic solutions** have the potential to generate positive impacts by 2030





A short focus on the MRV

Therefore, in strong collaboration with the OrcaSa and Marvic Horizon projects and building on the conceptual framework for Monitoring by Smith et al. (2020)



ClieNFarms will:

- Analyse the current/existing frameworks for MRV at different production systems (duration of the projects, definition of the baselines, levers considered...) ==> towards the proposition of a unified framework,
- Contribute to the development of digital tools for monitoring by :
- Analysing the compliance of the current digital tools (e.g. models) with the certification methodologies (literature study) : analysis of strength and weaknesses of current models, needs for further development, accounting or not for key climate mitigation practices ==> proposition of improvement of the current certification methodologies,
- Testing a range of models and implementing them at Demo and Lead commercial ٠ farms ==> analysis of minimum dataset needed, data collection, sensitivity and accuracy analysis, ensemble modelling,
- Developing dedicated protocols for data collection at farm level (e.g. soil and vegetation sampling) and best use of new data steams (e.g. remote sensing) for model's input & validation,
- Developing prototypes of digital Monitoring tools for the MRV taking the advantage of new data streams (e.g. remote sensing)

=> increase the accuracy, the scalability and reduce de cost of implementation of Monitoring for MRV schemes

From farm to larger scale

- To have a huge impact need upscaling
- Food processors are part of the project (Nestlé, Danone, Friesland Campina, Nutrifarms)
- Working with them allow to reach a large number of farmers

- Two approaches
 - Spatial modeling (ex Cland)
 - Research approach



esdac.jrc.ec.europa.eu

- Developing sound business models from farms archetypes
 - Operational approach



Examples of Business models

Financing carbon storage by an agri-food company in its value chain



Aggregation of carbon credits by a third party





EU opening through Webinars and Policy Workshops



Webinar "Making the Agri-Food Sector Circular"

by ClieNFarms / September 22, 2022

In this 90-minute webinar, six Green Deal projects will present their approaches and solutions to two of the biggest problems facing the agri-food sector: greenhouse gas emissions and food losses and waste: ClieNFarms, ENOUGH, SISTERS, ZeroW, Agro2Circular, and FRONTSHIP.



https://clienfarms.eu/

Informal policy workshop Proposal of legislative framework for the certification of carbon removals

24 January 2023, 10:00 - 13:15

EIT House, Rue Guimard 7, 1000 Brussels

In this informal workshop, a small group of invited policy makers and stakeholders will discuss the proposal of the legislative framework for the certification of carbon removals. First, the European Commission will present the proposal. Then ClieNFarms will provide feedback on the proposal based on the experiences in the project. Finally, we will open the discussion for all invited participants to bring in their different perspectives.



On 8 July 2022, the first ClieNFarms public policy workshop took place online. The topic of the the workshop was climate neutrality and food security in the context of the war in Ukraine.

International Advisory Board / Int. Initiatives

- **Dhanush Dinesh**, Europe/international, ex CGIAR, Consultancy science/policy, Clim-Eat
- Akiko Nagano, Japan, FAO Programme Officer at Office of Climate Change, Biodiversity and Environment (OCB), and Ministry of Agriculture in Japan
- Noor Yafai, Europe/International, Europe Director Global Policy and Institutional Partnerships at The Nature Conservancy
- Mark Howden, Australia, Director of the ANU Institute for Climate, Energy and Disaster Solutions, IPCC member
- Liz Bowles, UK, Chief Executive of the Farm Carbon Toolkit (FCT), former Director Farming and Land Use at the Soil Association in charge of Innovative Farmers Programme
- Karen Mapusua, Pacific/ International, Vice President of IFOAM Organics International
- Yash Dang, Australia, Soil and Carbon
- Marion Verles, Europe/International, Certification, SustainCert
- Margaret Bancerz, Canada, Government, AAFC Agriculture and Agri-Food Canada living labs
- Luca Urbano, Europe/ International, Industry, UNILEVER

International initiatives recommended by the IAB:

- <u>Innovative farmers</u>: a 10 years old network of farmers and growers who are running on-farm trials on their own terms.
- <u>Fabulous Farmers</u>: an INterreg project that aims to reduce the reliance on external inputs by encouraging the use of methods and interventions that increase the farm's Functional AgroBiodiversity (FAB).
- <u>Farm Net Zero</u> : farmers work with the partners in order to reduce or mitigate their climate impacts
- <u>Green Climate Fund program</u>: looks at converting major economic production systems to regenerative organic production with a focus on C sequestration, biodiversity, etc.
- <u>Global Soil Partnership</u> : mechanism established in 2012 with the mission to position soils in the Global Agenda and to promote sustainable soil management
- <u>Global research alliance on GHG</u> : bring countries together to find ways to grow more food without growing greenhouse gas emissions.
- farmers for climate action : farmers taking climate action and making themselves heard by media, policy makers and Australians.



General outputs

ClieNFarms knowledge Hub Innovative solutions Farmers' Network and Multi-actors ecosystem

Trustful methodologies Metrics & standards Integral sustainability Systemic Implementation & evaluation Peer-to-Peer learning Scalling up Living lab EU wide scenarios Innovative business models Carbon credit platform



Expected Impacts





Follow us on our digital channels!









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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036822