



ClieNFarms
Climate Neutral Farms

D1.3 First annual knowledge exchange duly organised

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1 Executive summary

The general objective of ClieNFarms is to co-develop and upscale systemic locally relevant solutions (organisational, financial, technical) to reach climate neutral and climate resilient sustainable farms across Europe, interactively integrating and improving existing solutions to achieve economically viable business models in farming systems by involving farmers, extension services, agri-food business, policymakers, finance, and citizens. A key component of the project is the **exchange between I3S managers organized in task 1.2.**

The knowledge exchange sessions: farm level solutions to be displayed, demonstrated and debated

The core concept of the ClieNFarms approach is the Innovative Systemic Solution Space (I3S). Systemic because it takes into account not only the farm but also the surrounding (eco)system (suppliers, advisors, research, agro-equipment, etc.). Solution space because different solutions will be proposed and tailored for each farm, depending on their pedoclimatic conditions, resources availabilities and constraints. Innovative, because the proposed solutions will induce emergence and adoption of efficient innovation including different new elements such as finance, banks, collaborative proposals.

In order to achieve the objectives of the project, I3S network will have to implement solutions on their demonstrative, lead commercial and commercial farms. The objectives of WP1 is to cross fertilize I3S and demonstrate solutions already in place or in progress to be implemented to all I3Ss.

In order to organize these exchanges, a well-functioning European network of multi-actors I3S must be co constructed. It will be used to **exchange knowledge through various visits, meetings and presentation**, quantify the performance baseline of the I3Ss and to build a reservoir of existing solutions which will be used and update throughout the project. WP1 constitutes the nexus of the project as collaborative and creative arena across I3Ss and starting point of a sustainable European Agriculture through climate-neutral farms.

I3S Coordinators exchanged knowledge during this first year of project and discussed about interesting themes to structure the network. The cross-fertilisation on the different thematic areas is conducted throughout the project by implementing the annual knowledge programs.

During the first year of the ClieNFarms project I3Ss managers has been identified. They met together with WP1 members in four “half-day knowledge exchange session” to co-construct the I3S network architecture considering their needs, interests and curiosities in a bottom-up approach and identify topics they want to address and I3S to be visited in 2023.

Following these meetings 6 themes has been identified with a thematic leader nominated for each one of them. The I3S network and knowledge exchange sessions are well functioning at the 15/12/2022. During this year those exchanges permits to obtain a workplan for exchanges and visits for 2022 and 2023.

2 About the ClieNFarms Innovation Action

Supporting the Farm to Fork (F2F) strategy, contributing to the achievement of its objectives, the ClieNFarms project aims to demonstrate, evaluate, and improve technical, organisational, and financial solutions at the farm level that will contribute to achieving climate-neutrality of European agriculture by 2050. This will be done by a multi-actor approach, interactively integrating, and improving existing solutions to achieve economically viable business models in farming systems by involving farmers, extension services, agri-food business, policymakers, finance and citizens. These solutions will be disseminated, and young farmers will be targeted through capacity building.

The central operational focus of ClieNFarms is the case-study structure that will allow a strong empowerment of farmers and supply chain accompanied by a smooth dissemination and replication of the tested innovations. Called I3S (Innovative Systemic Solutions Space) the demonstration structure is based on demonstration farms, lead commercial farms, outreach farms and replicate farms working all together with the supply chain in a living-lab like structure approach.

ClieNFarms also intends to pave the way for combined biogeochemical (reduction in GHG missions, increase C storage) and bio geophysical effects (increase in surface albedo, reduction in sensible heat flux and infrared radiation) to mitigate climate change more efficiently, without any negative impacts for food security or yield/product quality.

The project is vastly innovative as aims to: (1) integrate different solutions to embrace mixed crop farming systems and animal production; (2) account for bio geophysical effects associated with changes in management practices in order to promote the synergies between the biogeochemical effects and the bio geophysical effects; (3) move from farm level to (eco)system level either through farm networks or by involving supply chains in a multi-actor designed process; (4) validate integrative solutions and to develop the required financial incentives to engage farmers in the required transition.

3 Introduction

3.1. Purpose of the document

The purpose of this document is to present the work conducted during the first year of the ClieNFarms project considering knowledge exchange sessions. These knowledge exchanges sessions and visits will be continued for the next three years of the project, capitalizing on methods described in tasks 1.1 and feedback from the work of WP2 and WP3 especially.

In 2022, the network of I3S has been identified and exchanges started since M1. This document presents the structuration of the knowledge exchanges that took place in 2022 and the program for 2023 which has been decided in a participative approach with I3Ss managers.

It provides:

- A representative sample of the European agricultural systems greenhouse gas emission: I3S description that have high potential to reduce emissions and demonstrate solutions in their respective value chains. Other important criteria like product destination (bioenergy, feed, food), organic and conventional, policy, industry and finance will enable the interconnection of the I3S together in view of permanent knowledge exchanges.
- The identified I3S manager that has been appointed for each I3S. The managers of the I3S already started to implement the project activities in their own area through design thinking in a multiactor setting.
- The connection with other I3S has been described with an I3S network architecture following six themes (described in D1.1). Knowledge exchanges are organized regarding these six themes throughout the project but not only.
- A summary of the first year of meetings and events with I3Ss managers and WP1 members to build a common approach for **different knowledge exchange sessions**.
- A presentation of the annual program of exchanges for 2023 will also be provided in this document.

3.2. Structure of the document

This document is structured in two sections:

- **Describe the structuration** by the I3S managers and ClieNFarms partners.
- **An overview of the knowledge exchanges** organized in 2022 and the program for 2023.

4 Structuration of knowledge exchanges

The coordinators of the I3S have been identified during M1 (table 1). They started to implement the project activities in their own area.

Country	Production	Leading Partner	I3S Manager
Belgium	Crops	CRAW	Marie Collard
Switzerland	Dairy	BFH-HAFL - Nestle	Jan Grenz
Germany	Dairy (organic)	JLU	Deise Knob
Spain	Dairy	AGACAL	César Resch Zafra
France	Beef	IDELE	Thomas Gontier
France	Dairy	IDELE	Sylvain Foray
France	Crops (south)	ACTA	Oscar Godin
France	Crops (north east)	ACTA	Anne Schneider
France	Wine and energy	EDF	Mike van Iseghem
Ireland	Beef	Teagasc	Karl Richards
Ireland	Dairy	Teagasc	Deirdre Hennessy
Italy	Tomato	UCSC	Andrea Ferrarini
Netherlands	Dairy	WR	Jouke Oenema
New Zealand	Dairy	AgResearch	Cecile de Klein
Portugal	Olive oil	NutriFarms (DF & LF)/CONSULAI (Outreach farms)	Isabel Ribeiro
Romania	Sheep	IBNA	Catalin Dragomir
Ukraine	Crops	BFH-HAFL - ukraine	Oleksii Omelianenko
UK	Crops	Game & Wildlife Conservation Trust (Allerton project)	Alastair Leake
UK	Pigs	University of Leeds	Lisa Collins
Poland	Dairy	Danone	Anna Reps-Bednarczyk

Table 1: I3S and I3S coordinators

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In order to stay connected to other I3Ss and to facilitate exchanges and dissemination of solutions a network has been built through design thinking in a multiactor participative approach.

This work was conducted during **two “half-day knowledge exchange workshop”** and a collaborative work (figure 1) was conducted aiming to identify:

- Needs for I3S coordinators
- Interests for I3S coordinators
- Existing solution/project in each I3S
- Lacks / possible improvement in their I3S

This work was used to structure the I3S network in six major structural themes (two main themes linked with production type solutions and four transversal themes links to the type of solution implemented). A theme leader has been identified for each theme (table 2). The Theme Leaders will organise the knowledge exchange activities between the I3S Coordinators. Following feedback from I3Ss coordinators:

- All I3Ss coordinators will be invited to all I3Ss visits.
- During “knowledge exchange workshops” discussions and agendas will be structured according to the theme but each I3S could present a solution, experience, proposition

Annual programs will be discussed in plenary session and structured according to the six major structural themes.

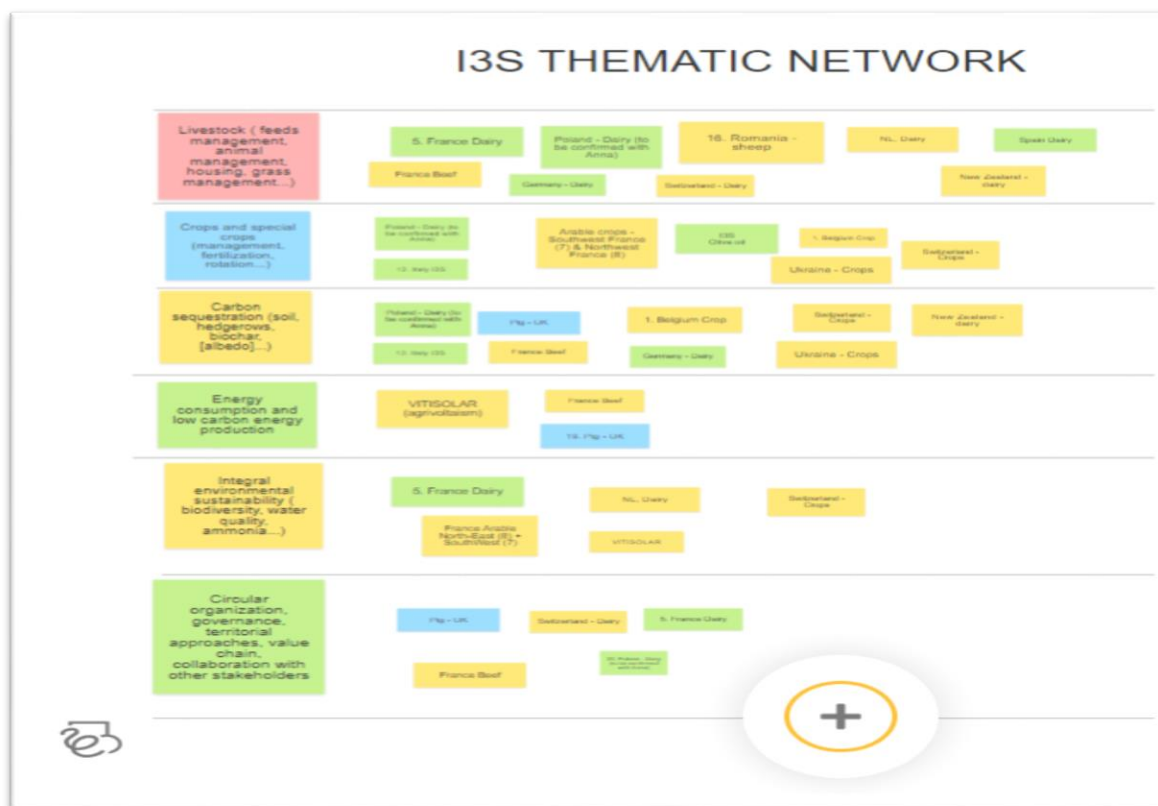


Figure 1: Example of collaborative work during knowledge exchange sessions of 2022: “online brainstorming” to structure I3S network.

<i>Theme</i>	<i>Thematic leader</i>
1. Livestock (feeds management, animal management, housings, grass management...)	Deirdre Hennessy TEAGASC
2. Crops and special crops (fertilization, soil management, crops management, specific mitigation practices, crops rotation...)	Anne Schneider ACTA Andrea Ferrarini USCS
3. Carbon sequestration (soil, humic balance, impact of farming practices on soil carbon sequestration, effect of hedgerows, agroforestry, biochar...) albedo...	Laura Van Vooren BIOFORUM
4. Low carbon energy production, energy (fuel and electricity consumption, biogas plant, wooden chips from hedgerows, photovoltaic...)	Mike van Iseghem EDF
5. Integral Environmental sustainability (Biodiversity, risk of nutrients leaching, ammonia emissions, soil erosion...)	Jouke Oenema WR
6. Other approaches Circular organization, governance, territorial approaches, value chain, collaboration with other stakeholders...	Markus Steffens FiBL

Table 2: I3S network themes

5 Overview of knowledge exchanges in 2022/2023

Based on the network architecture and the needs expressed by I3S managers, WP1 organised regular and long-term knowledge exchanges among the I3Ss. The knowledge exchanges are organised following different logics and several dimensions of the project.

In 2022 they have been organised:

- by country: in France, with regards to the specificities of the French AKIS – Agricultural Knowledge and Innovation Systems),
- by value chain (crops and special crops and livestock dairy and beef in October and November 2022)
- by solution types following the thematic network define in D1.1

An annual program of complementary activities is in place for 2023 in order to exchange knowledge and solutions and see on fields the innovations implemented in the various I3Ss during the first year of the project.

<i>Type of exchange</i>	<i>2022</i>	<i>Program for 2023</i>
One “knowledge exchange session” with innovative methodology per year between I3S managers during annual meetings	• Exchange about solutions already implemented, to be implemented during the project and waiting to be implemented due to different brakes organised in 6 thematics and 4 groups including other experts and partners (18/10/22).	• Annual meeting 2023 in October 2023 in Ireland. Agenda of the knowledge exchange session and farm visits yet to be determined. It will be co-constructed with I3S managers during first semester 2023.
"I3S cross-border visit" for I3S Coordinators will be organised on annual basis. All I3S Coordinators will “see, touch and smell” the operational solutions and best practices implemented in other I3S and exchange with the wide range of other I3S’actors.	Due to the implementation and recruitment of farmers in actions of the WP3 we visited one I3S in 2022, the other cross border visits have been replaced by presentation of each I3S during dedicated meetings. I3S Wageningen, dairy cross border visit , 20th October 2022: • De Marke Demonstrative Farm. On site presentation of GHG mitigation and carbon sequestration technical solution and ANCA results of the farm.	Three physical cross border visits: 2 days physical meeting to visit I3S • March 2023 (mixed system in Switzerland FiBL) • September 2023 Italy for special crops (tomatoes), Università Cattolica del Sacro Cuore. • October 2023 in Ireland with Teagasc (Beef and dairy I3Ss)

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	Stevens Lead Commercial farm visit, testimonies and exchanges.	
Quarterly on-line “knowledge exchange workshops” between I3S managers on different topics and themes according to the annual knowledge program and the I3S Coordinators needs	- Presentation of I3S managers and their I3S (17/02/22) - Structuration of I3Ss network with 6 themes (25/04/22) - Knowledge exchange about solution to be implemented, data requirements and other environmental impacts (13/07/22) - Exchange about crops and special crops solutions	Every first Tuesday of February /May / July / December: 07/02/2023 02/05/2023 04/07/2023 05/12/2023
Extra themes exchange sessions between I3S managers and experts, tailoring the needs and interests of I3S managers	- How to quantify climate performance (held the 7th December 2022) - How quantify carbon sequestration (held the 24th of November 2022)	Exchanges around the crediting methodology and platform as an incentive for farmers to adopt climate neutral solutions.

Figure 2: Annual exchange programs for 2022 and 2023

The new solutions identified and exchanged along this process will be translated and adapted to feed the catalogue/reservoir managed in T1.4.

6 Conclusions

The goal of WP1 is to establish a well-functioning European network of multi-actors I3S, to **exchange knowledge**, quantify the performance baseline of the I3Ss and to build **a reservoir of existing solutions** which will be used and updated throughout the project. WP1 constitutes the nexus of the project as collaborative and creative arena across I3Ss and starting point of a sustainable European Agriculture through climate-neutral farms.

At M12 of the ClieNFarms project within the task 1.2, WP1 and I3S managers have:

- Structured I3S exchanges within a thematic network with I3S managers appointed **as thematic leaders**.
- Thematic leaders will have the **following responsibilities regarding knowledge exchanges**
 - o asking other I3S coordinators within the thematic to describe and present some examples of solution towards climate neutrality during knowledge exchange sessions
 - o discussing solutions and maintaining communication between I3S coordinators between meetings within the thematic if needed
 - o Organize physical meeting, visits and set up the agenda with WP leader for cross border visits
 - o Participated actively to the whole 2022 program of knowledge exchange sessions, specific meetings and cross border visits.
 - o Co-created the 2023 knowledge exchange program especially with thematic leaders and volunteer I3S managers to host cross border visits.

At the end of the first year of the ClieNFarms project, I3S Coordinators have already started to exchange knowledge and cross-fertilise on the different thematic areas. A program of exchanges and complementary training sessions is already available for 2023. It will be updated after each knowledge exchange session considering needs of I3S managers and feedback from other stakeholders involved in the creative arenas.