LIFE GREEN SHEEP
For a low carbon and sustainable sheep farming

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Small ruminants, in particular dairy sheep and sheep for meat production, produce greenhouse gas (GHG) emissions representing 7.4% of global GHG emissions (FAO, 2017). Nevertheless, studies show that farmers have little knowledge of how to reduce GHG emissions. Sheep farming can contribute to GHG mitigation by storing carbon in grasslands hedgerows etc. Thus sheep farming has an important role in mitigating climate change and keeping farms viable. Finally, studies undertaken in Europe show that farmers can change their management practices to improve mitigation strategies.

Therefore, the LIFE GREEN SHEEP projects tries to reduce the carbon footprint of sheep meat and sheep milk by 12% within 10 years, while ensuring the farms' sustainability, in 5 countries, namerly France, Ireland, Italy, Romania and Spain.

PROJECT SCREENING

An ambitious goal:
reduce GHG emissions in sheep farming by 12% while ensuring farm sustainability.

Operational goals

- Launch a national and European progress initiative,
- Create an observatory of the environmental and sustainability performances of sheep farming systems,
- Communicate and disseminate the project's action,
- Build up the future low-carbon and sustainable strategy of the sheep sector.

5 actions to meet these challenges and objectives:

1. **Develop** a common European framework on greenhouse gas emissions, carbon storage and sustainability performances and **create a national and European dynamic**.

2. **Train** advisors and technicians for assessment methods and tools.

3. **Create an observatory** of 1 355 demonstrative farms in Europe involved in a low-carbon and sustainable approach.

4. **Test** low-carbon and sustainable action levers by following 282 innovative low-carbon impact farms in Europe.

5. **Develop national action plans** aiming at reducing GHG emissions in sheep farming while maintaining the sustainability of farms and build up the partnerships necessary to disseminate these action plans.

European partners

The project involves 40 partners in 5 countries representing the diversity of dairy and meat sheep farming systems in Europe.

IRELAND
- Teagasc - Agriculture and Food Development Authority

ITALY
- Agris Sardegna
- University of Sassari
- Laore Sardegna

SPAIN
- NEIKER-Instituto Vasco de Investigación y Desarrollo Agrario S.A.
- Instituto Tecnológico Agrario de Castilla y León
- Lurgintza Soc. Coop.
- Oviaragón SCL

ROMANIA
- Institutul National de Cercetare-Dezvoltare pentru Biologie si Nutritie Animala (INCDBNA)

FRANCE
- Institut de l'Elevage
- INTERBEV
- France Brebis Laitière
- La Coopération Agricole, and its affiliates
- Confédération générale de Roquefort
- Association régionale ovine de Nouvelle-Aquitaine
- Auvergne-Rhône-Alpes Elevage
- Maison Régionale de l'Elevage PACA
- Chambres d'Agriculture des Pyrénées-Atlantiques, de la Creuse, de Haute-Vienne
- ALYSE
- Centre Départemental de l'Elevage Ovin
- UNOTEC

LIFE GREEN SHEEP IS:

5 years
European project, from October 2020 to September 2025

€ **4,6 M**
budget

1 355
demonstrative farms involved

40 partners from
5 European countries

Reduce by **12 %** GHG emissions while maintaining farms' sustainability

282
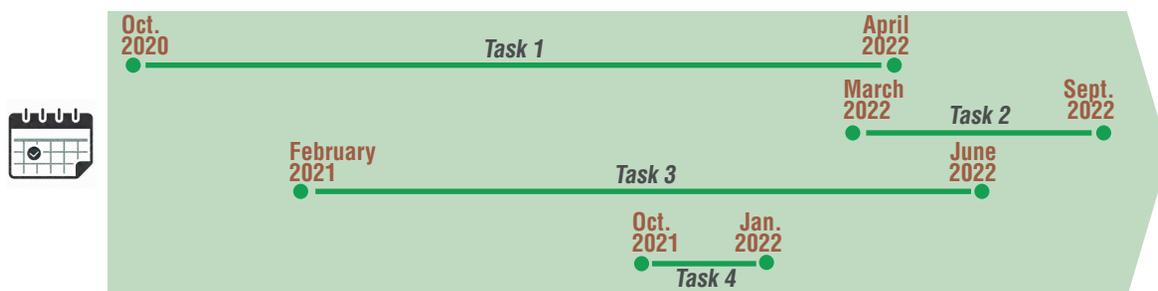innovative farms involved in the implementation of action levers

ACTION 1

IMPLEMENTATION OF A COMMON EUROPEAN FRAMEWORK FOR THE ASSESSMENT OF GHG EMISSIONS AND SUSTAINABILITY PERFORMANCES.

OBJECTIVE: On a European scale, to review methods for evaluating GHG emissions and sustainability indicators, compare and update the existing tools for higher harmonization. In France, Italy, and Romania, the CAP'2ER® and DEO Levels 1 and 2 tools will be used, whereas Irish and Spanish partners will use their own tool (SheepLCA and ArdiCarbon, respectively).

IMPLEMENTATION:

- **Task 1**: Develop a common methodology to assess GHG emissions
  - Qualitative comparison of the tools (CAP'2ER®, ArdiCarbon, CarbonSheep, and SheepLCA) by comparing the methodologies used : scope of assessment, functional unit, allocation, emission factors, technical data needed, etc.,
  - Quantitative comparison of the tools by applying them to 3 study cases per production system (milk sheep, meat sheep) and per country.
- **Task 2**: Develop a common methodology to assess sustainability performance production
  - Inventory of existing methods/indicators, choice of common indicators based on existing tools: DEO in France, ArdiCarbon in Spain and the tool developed within H2020 iSAGE project.
- **Task 3**: Building and updating tools
  - Focus on emissions factors updating, calculation formulas implementation for new indicators if needed, integration of parameters adapted to the country context, etc...
  - adaptation of the CAP'2ER® tool to the Romanian and Italian systems.
- **Task 4**: Bibliography review and synthesis on the action levers.

Oct. 2020 — *Task 1* — April 2022	
March 2022 — *Task 2* — Sept. 2022	
February 2021 — *Task 3* — June 2022	
Oct. 2021 — *Task 4* — Jan. 2022	

ACTION 2

TRAIN ADVISORS AND TECHNICIANS FOR ASSESSMENT TOOLS AND METHODS.

OBJECTIVE: Raise awareness and train advisors and technicians for the tools assessing environmental and sustainability performances: knowledge of the context, methodologies, use of the tools, analysis of the results, construction of action plans.

IMPLEMENTATION:

- **Task 1**: Development of a harmonized training kit including:
  - a presentation of the context (GHG mitigation...) and the Greensheep project,
  - a presentation of the tools,
  - a presentation of the data collection module,
  - guidelines on the results analysis and interpretation,
  - potential mitigation techniques.
- **Task 2**: Organization of training sessions for 143 advisers (on-line / physical meetings / combined meetings).
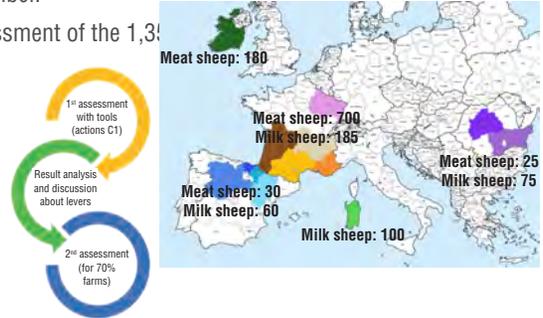
Sept. 2021	March 2022	Sept. 2022
Task 1		*Task 2*

1 355 DEMONSTRATIVE FARMS IN EUROPE INVOLVED IN A LOW-CARBON AND SUSTAINABLE APPROACH.

OBJECTIVE: Undertake a large assessment of GHG emissions in sheep farming and create national and European observatories of environmental and sustainability performances by carrying out a diagnosis on 1,355 farms (known as Demonstrative Farms). This action will allow the creation of reference sheets presenting these results by type of production system and by region. A 5% GHG emission reduction target at the end of the project is expected for these demonstrative farms.

IMPLEMENTATION:

- **Task 1**: Constitution of the 1,355 demonstrative farms' sample:
  - each type of system will be sufficiently represented in number.
- **Task 2**: Environmental and sustainability performances assessment of the 1,35[...] tools (CAP'2ER® Level 1 in France, Italy and Romania, Ardicarbon in Spain and SheepLCA in Ireland).
- **Task 3**: Analysis and synthesis of results:
  - determine the level of environmental and sustainability efficiency of farms,
  - calculate environmental and sustainability performances to feed into the reference sheets,
  - relate environmental results to practice indicators,
  - study the link between technical, environmental, economic and social efficiency,
  - assess the evolution of emissions between the 1st and 2nd diagnosis (objective: -5%) for at least 70% of the demonstration farms.

1st assessment with tools (actions C1)

Result analysis and discussion about levers

2nd assessment (for 70% farms)

Meat sheep: 180

Meat sheep: 700
Milk sheep: 185

Meat sheep: 25
Milk sheep: 75

Meat sheep: 30
Milk sheep: 60

Milk sheep: 100

Sept. 2021 — Jan. 2022 — *Task 2* — Jan. 2023
Task 1

April 2022 — Sept. 2023
Task 3

Oct. 2024 — *Task 2* — May 2025

March 2025 — Sept. 2025
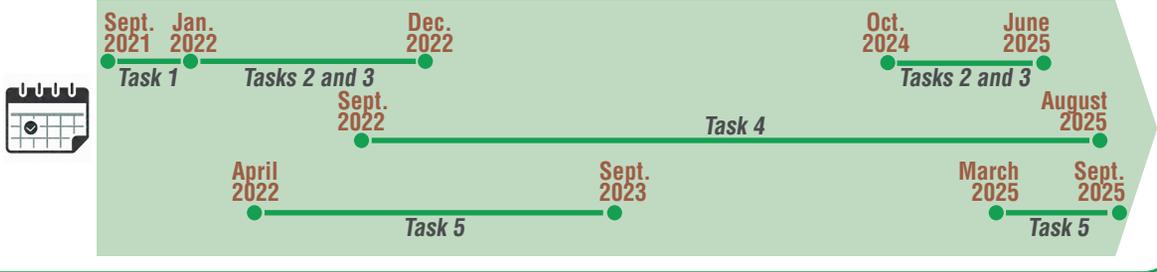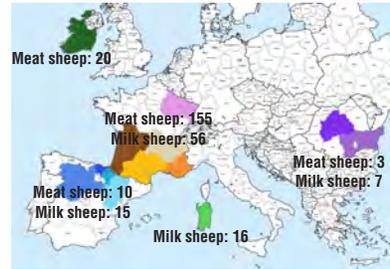*Task 3*

© IBNA, Romania

© Sarda sheep flock

ACTION 4

MONITORING OF 282 INNOVATIVE LOW-CARBON IMPACT FARMS IN EUROPE .

OBJECTIVE: Similar to the demonstrative farms, assess the environmental and sustainability performance of 282 farms (known as innovative farms), develop and promote low-carbon farms by demonstrating the feasibility of action levers in real conditions. The purpose will be to assess the technical, environmental and economic benefits of adopting these reduction practices at the farm level and verifying the achievement of the 12% reduction objective for the innovative farms.

IMPLEMENTATION:

- **Task 1**: Constitution of the 282 innovative farms' sample:
  - each type of system will be represented and the sample can include experimental farms.
- **Tasks 2, 3 and 4**: Environmental and sustainability performances assessment of the 282 innovative farms with national tools (CAP'2ER® Level 2 in France, Italy and Romania, Ardicarbon in Spain and SheepLCA in Ireland).
- **Task 5**: Analysis and synthesis of results, calculation of environmental, economic and social gains:
  - analysis of the 1st and 2nd assessments' results,
  - calculations of GHG savings obtained against the -12% target,
  - calculations of other environmental, economic social gains,
  - prioritization of action levers by cross-referencing production systems and pedoclimatic conditions,
  - summary of action plans, their impacts, feasibility and limits.

Initial assessment
- Data collection
- Result presentation

Action plan
- Result analysis of initial assessment
- Action levers identification
- Action levers scenarios
- Construction of action plan

Performance monitoring
- Monitoring of action plan implementation
- Adaptations of necessary nécessaire

Final assessment
- Data collection
- Results presentation

Meat sheep: 20
Meat sheep: 155
Milk sheep: 56
Meat sheep: 3
Milk sheep: 7
Meat sheep: 10
Milk sheep: 15
Milk sheep: 16

Sept. 2021 — Jan. 2022 — Dec. 2022 — Oct. 2024 — June 2025
Task 1 — Tasks 2 and 3 — Tasks 2 and 3

Sept. 2022 — August 2025
Task 4

April 2022 — Sept. 2023 — March 2025 — Sept. 2025
Task 5 — Task 5

ACTION 5

DEVELOP NATIONAL ACTION PLANS AIMING TO REDUCE GHG EMISSIONS IN SHEEP FARMING.

OBJECTIVE: All the actions undertaken within the framework of the project will contribute to establish the climate and sustainable roadmap for the sheep sector for the future. This action aims to synthesize and formalize all the knowledge acquired through this LIFE Green Sheep project, and to define the national communication strategy and the partnerships to be built for the deployment of a carbon and sustainable plan towards all upstream stakeholders.

IMPLEMENTATION:

- **Task 1**: National action plans:
  - list levers identified in action 4 and summarize their advantages/limits and impacts,
  - develop a national action plan.
- **Task 2**: Acceptability of the approach by farmers and advisers: running online surveys to collect feedback from farmers and advisers on the approach implemented.
- **Task 3** : Implementation of a partnership strategy with the aim of disseminating national action plans:
  - identify arguments to put forward to promote the action plans and the approach,
  - integrate these new aspects into the advice process,
  - build the strategy to increase the number of advisers and farmers involved and create new partnerships.

April 2024	Task 1	March 2025

April 2024	Task 2	Oct. 2024	Task 3	April 2025

Green Sheep

Find all information and news relating to the project on:
- the LIFE Green SHEEP websites:
  - in France: **www.life-green-sheep.fr**
  - in Ireland: **https://www.teagasc.ie/animals/sheep/research/life-green-sheep**
  - in Italy: **http://www.sardegnaagricoltura.it/index.php?xsl=443&s=423259&v=2&c=3498&t=7**
  - in Romania: **https://www.ibna.ro/proiecte-de-cercetare/item/158-greensheep**
  - in Spain: **https://neiker.eus/es/proyecto/life-green-sheep/**
- the Facebook page [f] **https://www.facebook.com/life.green.sheep**

European events will also be organized (seminars, webinars, etc.) and a newsletter is forthcoming.