

LIFE CLINMED-FARM

Towards a Mediterranean Climate Neutral Farm Model



El project

LIFE CLINMED-FARM looks for integrating **simple and innovative techniques** in the main steps of **manure management** (production in animals' housing, storage, and land application) to **reduce ammonia (NH₃) and greenhouse gas** (methane - CH₄, and N₂O) **emissions**. These techniques are focused on the frequent slurry removal from animals' housing, the methane recovery during slurry storage, the efficient energy systems valorising biogas, the valorisation of the excess heat from biomethane production as a renewable energy source for activities in adjacent farms and/or industries, and the reduction of mineral fertilisers consumption optimising the digestate's management as organic fertiliser, all of them **in agreement with the principles of the circular economy**. These models are analysed from an environmental and socioeconomic point of view, **developing emissions measurement methodologies and environmental and agronomic monitoring protocols** that provide objective data to be compared.

The project monitors, supervises, and evaluates the **effectiveness and the socioeconomic and environmental sustainability** of these techniques, as well as the **possible impacts** in subsequent management stages derived from their implementation. The evaluation focuses its efforts on the development of reliable methods for measuring gas emissions and on the individual and joint mitigation potential of each technique or mitigation practice compared to traditional management systems.

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The LIFE programme

The Life Programme is the European Union's instrument for **funding nature, environment, and climate action projects**.

LIFE Call 2020 approved LIFE CLINMED-FARM funding into the **"Climate change mitigation" subprogram** which promotes pilot and demonstrative projects in agriculture, land use, renewable energy, and energy efficiency areas.



https://cinea.ec.europa.eu/programmes/life_en

The objectives

- **Adapting** existing agricultural and livestock facilities to **reduce** their greenhouse gas (GHG) and ammonia **emissions**.
- **Valorising** local energy resources and nutrients available in the slurry.
- **Developing methodologies** for measuring gas emissions on a field scale to verify the effectiveness of the techniques applied to mitigate emissions.
- Involving the agricultural and livestock sector, the administration, and social agents in the definition of **new models of sustainable agricultural production** in Mediterranean areas.

LIFE in figures



September 2021 – December 2025



2 countries (Spain and Italy)



7 partners



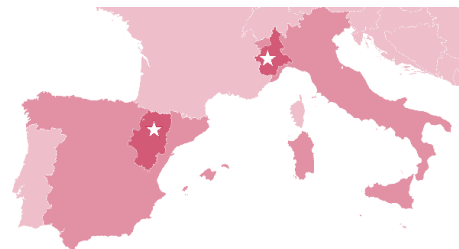
~3.6 M€ (55% of EU funds)

And 1.178 tons of equivalent CO₂ not released into the atmosphere!



The team

The project is coordinated by the Agri-Food Research and Technology Centre of Aragon (CITA) and has **Italian and Spanish partners** to perform two study cases: a **dairy cattle farm** in Piemonte (Italy) and a **sow farm** in Aragón (Spain).



Research centres:



CITA (Coordinator)
www.cita-aragon.es



DISAFA
Università degli studi di Torino

University of Turin
www.disafa.unito.it



Companies:



Micropower
www.micro-power.it



Ecobiogas
www.ecobiogas.es



ESPECIALISTAS EN TRATAMIENTO DE PURINES

Mecàniques Segalés
www.segales.es



Agropecuaria del Isábena



Mazana
www.mazana.es

In addition, we have...

An **international panel of experts** who provide a valuable scientific external vision of the objectives and progress of our actions.

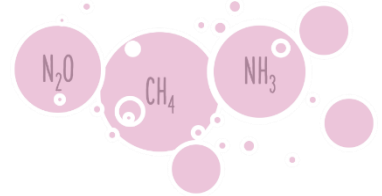
Two **local platforms**, one Italian and the other Spanish, which serve as a discussion forum and a channel for transferring the results in cooperation with the Consorzio Italiano Biogas and the National Cluster of Pig Producers (i+Porc).

Why?

Spain and Italy occupy prominent positions in **livestock production** in Europe. Aragon leads, with almost 10 million heads, European pig production and, therefore, also Spanish. The livestock sector in Italy produces 14 million tons of manure per year and 70% is concentrated in the north of the country.

The livestock sector activity, together with agriculture, has a **great environmental impact** in Europe since:

- Contributes to **94% of ammonia emissions**.
 - 46% of these are derived from manure management on farms, with animals' housing and storage lagoons and tanks as emission sources.
 - 26% comes from the application of manure and slurry to the field.
 - 18% is attributed to the application of synthetic fertilisers.
- **56% of methane emissions** come from livestock activity. This emission reaches 63% in Spain, where 66% corresponds to enteric fermentation and 32% to manure management.
- **74% of nitrous oxide** comes from agricultural and livestock activities, with crop fertilisation being the most important source.



Reducing these emissions is a key action towards **environmental sustainability of the agricultural activity**, but also for the maximum use of a resource such as slurry or manure, since the fewer gas losses by emission to the atmosphere, the **higher nutrient concentration** of the slurry and the higher value as organic fertiliser.

*References: Air pollutants by source sector & Greenhouse gas emissions by source sector (EuroStat data from 2020 and 2021, respectively, for the European Union of the 27 countries),
Inventario nacional de gases de efecto invernadero (Ministerio para la transición ecológica y el reto demográfico, 2023).*



The Agri-Food Research and Technology Centre of Aragon (CITA) is a **public body** attached to the Department of Science, University and Knowledge Society of the Government of Aragon. CITA carries out **research and technology development work** for the agri-food, forestry, and environmental sectors. CITA focuses on **producing quality scientific and technical information** about the agri-food sector and the environment which is relevant for the private sector, government, and the general public. Research must allow us to increase the sustainability, resilience and competitiveness of agri-food and forestry systems as we face global change.



LIFE CLINMED-FARM project is coordinated by the **Department of Environment, Agricultural and Forest Systems**, which aims to generate scientific and technical information to establish and **promote more competitive, efficient, and sustainable agricultural and forestry systems**. In order to meet this objective, its work is focused on:

- Understanding the nature and dynamics of ecosystems.
- Deepening the integrated management of the agricultural and forestry ecosystem using its own biodiversity.
- Identifying and conserving natural and agricultural resources and environment.
- Determining biological and ecological interactions between species.
- Increasing **efficiency in the use of production inputs and reducing the costs and environmental impact** of farming and forestry.
- Developing **innovative technologies** for diagnosing, managing, and optimising these systems.

The LIFE project is integrated into the last two points.

Project dissemination

The project has already been presented at various technical conferences addressed to the sector and the general public, as well as at the scientific sector, where the work to be developed and the expected results in the coming years have been shown:

- October 2021. Brussels (BE). Welcome thematic session meeting for climate action.
- February 2022. Vic (ES). Fira de l'Energia i la Construcció Sostenible.
- March 2022. Mollerussa (ES). Fira de Sant Josep de Maquinària Agrícola.
- November 2022. Perugia (IT). Metrology for Agriculture and Forestry.
- February 2023. Zaragoza (ES). Feria Internacional para la Producción Animal.
- April 2023. Candiolo (IT). Farming Tour: i nuovo percorsi del biogas.
- May 2023. Bilbao (ES). X Remedia Workshop.
- May 2023. Zaragoza (ES). Pint of Science.
- May 2023. Helsinki (FI). World Circular Economy Forum

Also in media:



Find out about upcoming events and the evolution of the project on our social networks!



@lifeclinmed

We have some infographics ready to understand the project simply and quickly.

Do not miss it in the following newsletter!



Our website

In it (www.lifeclinmed.eu) you can find all the information about the project (objectives, study cases, actions, partners...), as well as posters, presentations, and news that are constantly updated.



HOME THE PROJECT ACTIONS PARTNERS DOCUMENTS NEWS AGENDA

We highlight the project brochures in the documents section:

