

GLOBAL  
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ON AGRICULTURAL GREENHOUSE GASES

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# Agroecology and Agroforestry: adapting systems and mitigating against climate change

Leader: María Rosa Mosquera-Losada

**Title:** Agroecology and Agroforestry: adapting systems and mitigating against climate change

**Leader:** María Rosa Mosquera Losada

**GRA Council Champions:** *list the names of at least 5 GRA Members and Partners (including at least 3 Member countries)*

1. Spain, Esther Esteban
2. Brazil, Gustavo Mozzer
3. Argentina, Melipal Esteban
4. UK, Luke Spadavecchia
5. USA, James Dobrowolski
6. Chile, María Teresa Pino
7. Colombia, Rodrigo Martinez
8. Canadá, Bob Turnok

**Flagship aim:** is to develop a portfolio of agroforestry and agroecology best practices including **agroecosystem, supply chain and policy scale**, and their respective value chains, which is clearly linked to their capacity to increase carbon sequestration and/or reduce greenhouse gases emissions.

Analysis will be conducted under an agreed, common, LCA methodology, in a set of representative countries of the world.



The results will be included as a new section of the [AFINET-AF4EU database](#) which is currently linked to the GRA website.

The flagship will **involve input from all CRG Networks** and will be linked to the new FAO strategy and the Global Alliance for Climate-Smart Agriculture Enabling Environment Action group ([EEAG](#)).

## **WHY:**

**REACHING CLIMATE NEUTRALITY IN FARMING  
SYSTEMS IS A NEED**

## **HOW:**

**Nature-Based, Biodiversity-Based approaches:  
AGROECOLOGY AND AGROFORESTRY**

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**AGROECOLOGY:** Social movement that has to be deployed at plot, farm and landscape level

Temporal biodiversity

Spatial biodiversity

Crop diversification

Crop association

**AGROFORESTRY:** The combination of crops/grasslands (livestock) products with woody perennials (trees or/and shrubs)

Silvoarable

Silvopasture

Homegardens

Linear buffer strips

Forest farming





# WHERE?

< 10% Grasslands

<0.01% Arable lands

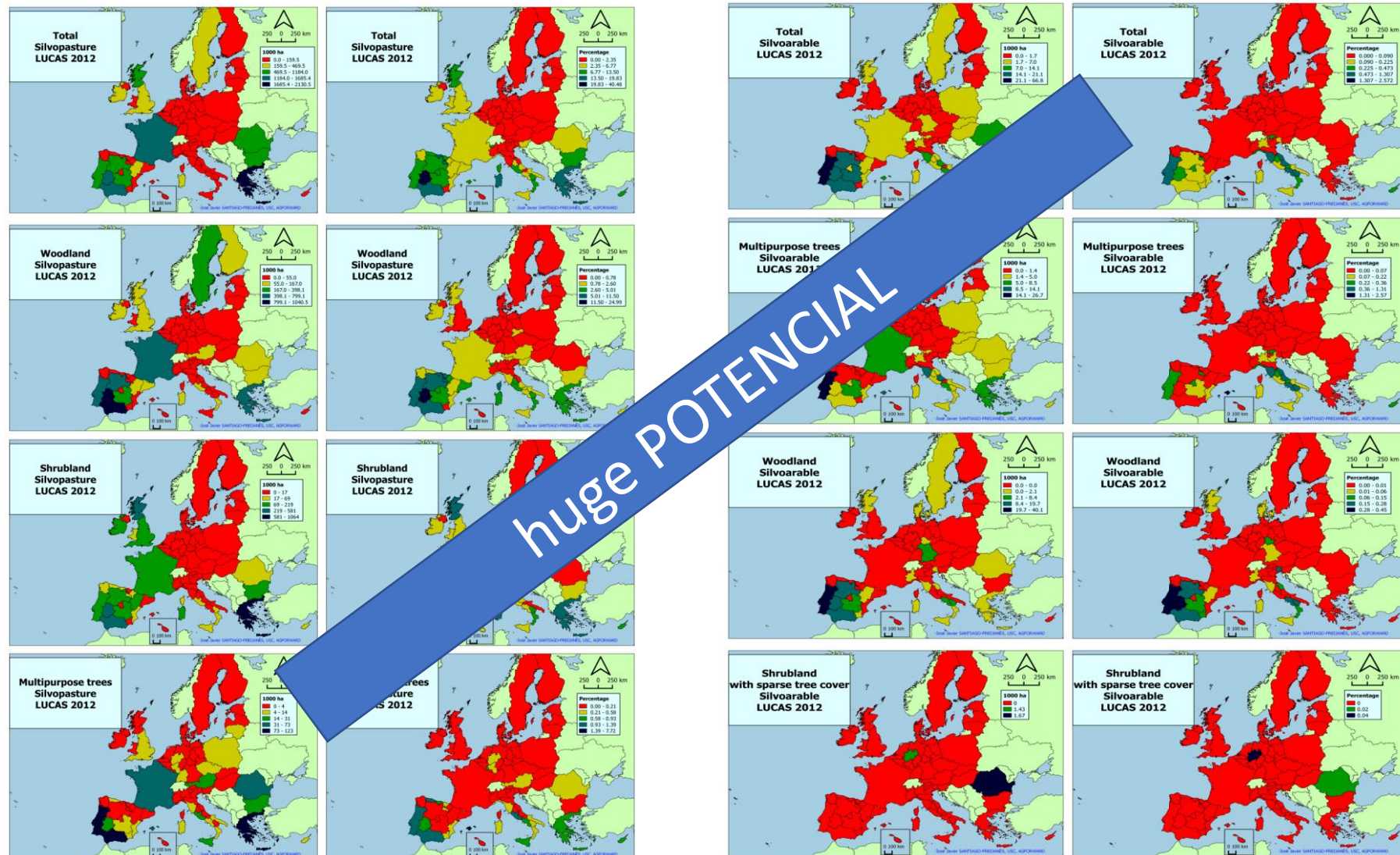


Figure 1. Area (left) and proportion (right) of European land use associated with all silvopasture, woodland silvopasture, shrubland silvopasture, and silvopasture with multi-purpose trees

Figure 1. Silvoarable practices linked to permanent crops (top), woodland (medium) and shrubland with sparse tree cover expressed as percentage (left) and hectares (right) per region in Europe

## Key partners and existing resources:

Country	Projects/Initiatives
Spain	AF4EU: will start in 2023 and analyses the agroforestry products value chain linked to LCA analysis in Europe UNDERTREES: favours policy networking in Ghana, Tanzania, Chile, Ecuador, Italy, UK and Brazil AE4EU, started in January 2021 analyses the transition towards sustainable land use practices in the EU
Argentina	FONTAGRO PROJECT
UK	SENSE project will address the following questions: <ul style="list-style-type: none"> <li>•Which circular activities in integrated (crop-livestock-forestry) systems lead to potential GHG mitigations at farm level?</li> <li>•What are the externalities determining the extent of circularity at farm level?</li> <li>•What are the impacts of circularity measures in crop-livestock-forest systems on the SDG goal 13 on Climate Action and on further grand challenges, such as biodiversity and decent incomes for farmers?</li> <li>•Are farmers in Europe willing to adopt any form of circular crop-livestock-forestry systems?</li> <li>•What level of complexity would be preferable for European farmers?</li> <li>•Which factors encourage or discourage the adoption of such systems</li> </ul>
Brazil	EMBRAPA projects
Colombia	Agroforestry projects
United States	GRACEnet: Greenhouse gas Reduction through Agricultural Carbon Enhancement network
Canada	EJP Project with diversified crop rotation sites
Norway	Agromix north, EJP carboseq, Mix and Max root



**OUTCOMES:** Provide a list of locally adapted best practices linked to different regions of the world about innovative solutions linked to reaching carbon neutrality through the use of sustainable practices at agroecosystem, supply chain and policy scale (research, advisory, farmer support funding) associated with agroforestry and agroecology in the next three years, in selected countries all over the world.

**LINKAGES:** FAO (Global agroforestry capacity needs assessment), Agroforestry initiative and the Global Alliance for Climate Smart Agriculture (FAO), the Circular Economy Alliance, UNFCCC NWP (Nairobi Work programme)

# CROPLANDS RESEARCH GROUP

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## **MORE INFORMATION:**

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