Online Targeted Workshop: “Farmers as guardians of water resources”
14th of April 2025

AQUAGRI-KNOW

Discussion 3: Future water needs for 2050 AQUAGRI-KNOW project

Maria Calderó Pascual, BETA TC (UVIC-UCC)

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Beta
UVIC
UNIVERSITAT DE VIC
UNIVERSITAT CENTRAL DE CATALUNYA

Funded by the European Union

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In a nutshell

AQUAGRI-KNOW

A young research centre at the heart of a rural territory

Beta

Biodiversitat, Ecologia,
Tecnologia Ambiental i Alimentària

UVIC
UNIVERSITAT DE VIC
UNIVERSITAT CENTRAL DE CATALUNYA

ACCIÓ Generalitat de Catalunya
tecnio catalonia
Vigència: 30/12/2024

OUR MISSION

Provide guidance, innovation and technological support to all actors involved throughout the production chain (including consumers)

To be a useful actor to support the transition towards the circular bioeconomy of societies, with a special focus on agri-food systems.

To support public administrations in the development of new policies, regulations and strategies based on scientific evidence at all levels, from local to international.

Environmental Technologies and Circular Bioeconomy

Sustainable Agricultural and Food Systems

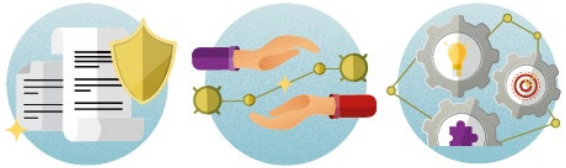
Applied Ecology and Global Change

Green Digital Transition

Accounting and Sustainability Optimization

Knowledge Transfer and Territorial-Sectoral Projects

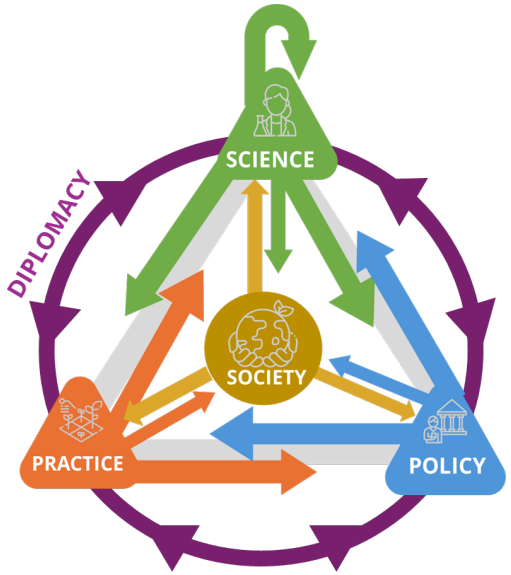
Governance for Sustainability



7 Teams of work

Governance for Sustainability

Increase the impact of research and innovation at different scales (local, regional, European and international) and between multi-actors (public administration, private sector, academia and civil society), with a special emphasis on policy makers. The team is distinguished by its ability to establishing collaboration opportunities and improving governance.



SCIENCE 4 PRACTICE

SCIENCE 4 POLICY

SCIENCE 4 DIPLOMACY

Projects & Networks

ReH2OCap

EmissioCap

Gov4GreenMED

AQUAGRI-KNOW PROJECT

AQUAGRI-KNOW: Collaborative Innovation for Water Management

SPAIN

UVIC-UCC. BETA TECHNOLOGICAL CENTER OF THE UNIVERSITY OF VIC
DARPA. DEPARTMENT OF AGRICULTURE, LIVESTOCK, FISHERIES AND FOOD
UP. FARMERS' UNION (UNIÓ DE PAGESOS)
REV. REVOLVE MEDITERRANEO

BELGIUM

UGent. GHENT UNIVERSITY
CEJA. EUROPEAN COUNCIL OF YOUNG FARMERS
INAGRO. INAGRO

ITALY

HORTA. HORTA
CREA. COUNCIL FOR AGRICULTURAL RESEARCH AND ECONOMICS

POLAND

CDR Brwinów. AGRICULTURAL ADVISORY CENTER IN BRWINÓW
IUNG-PIB. INSTITUTE OF SOIL SCIENCE AND PLANT CULTIVATION

CYPRUS

AGTIV. AGROTECH INNOVATIONS

12 strategic partners across 5 EU countries

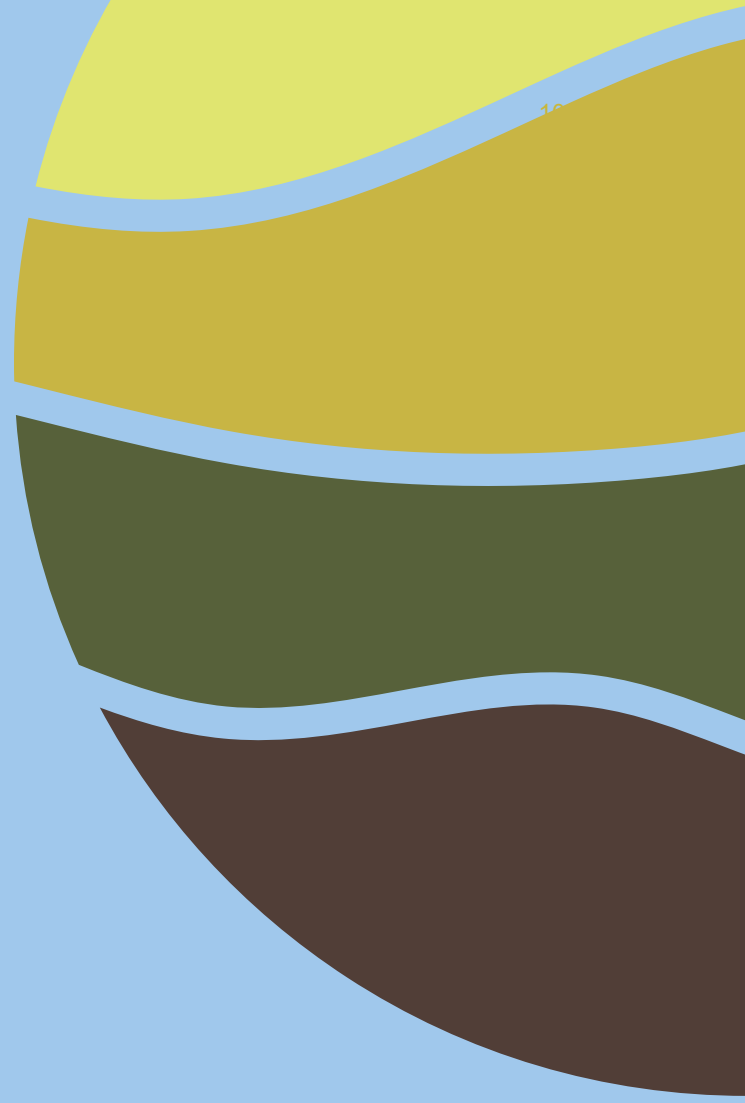
Multi-actor consortium expertise on-farm water innovations

Collaboration with EIP-AGRI OGs

AQUAGRI-KNOW

AQUAGRI-KNOW aims to empower farmers across the EU to tackle water scarcity, improve resource efficiency, and boost **agricultural sustainability.**

With a focus on the agri-food sector—responsible for up to 60% of water use—AQUAGRI-KNOW brings together **innovative strategies** to create a circular water value chain.

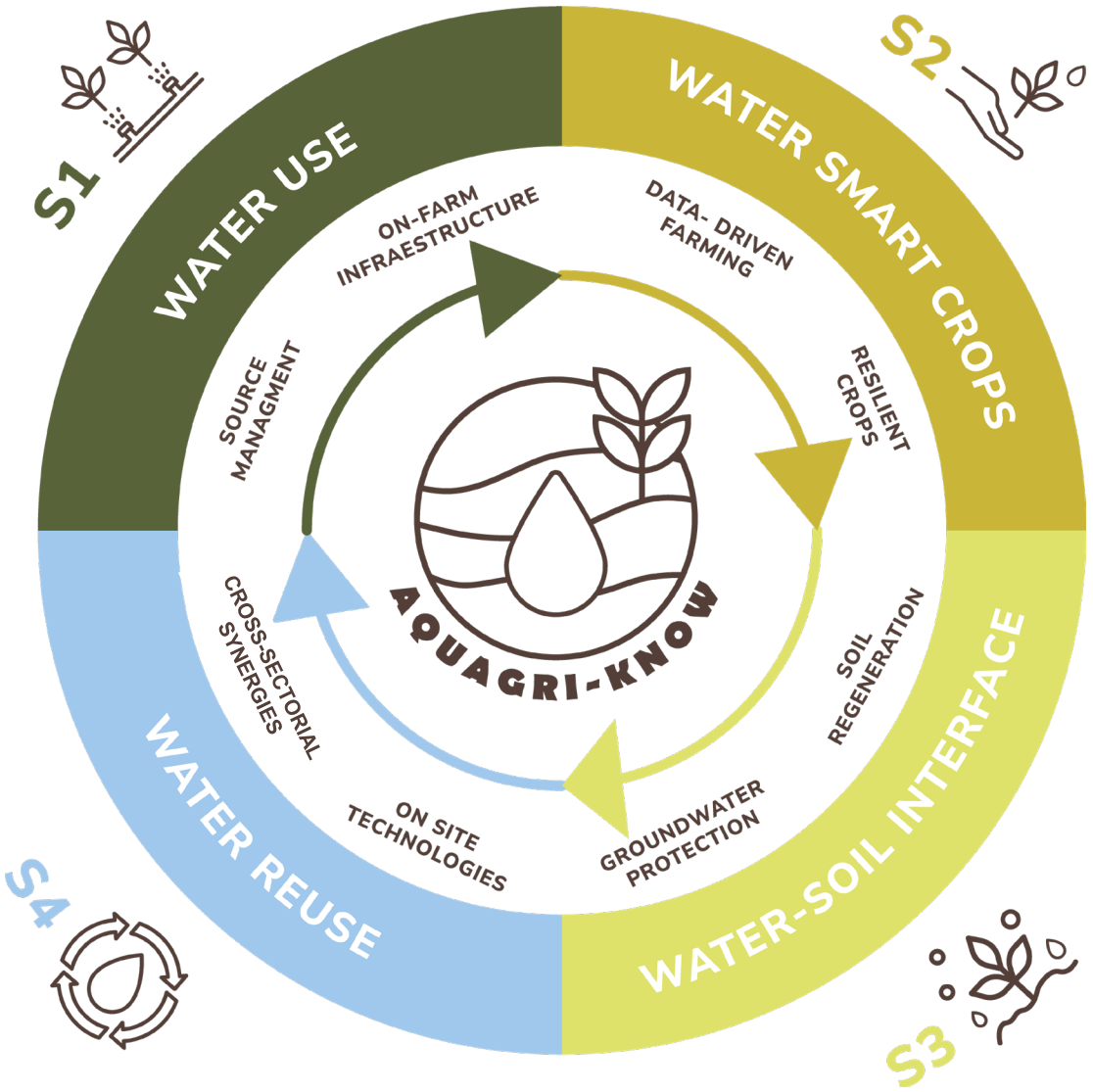


AQUAGRI-KNOW

Our Strategy

AQUAGRI-KNOW addresses water scarcity and water quality concerns focusing on four strategies ensuring a circular water value chain:

1) Water Use
2) Water Smart Crops
3) Water-Soil Interface
4) Water Reuse

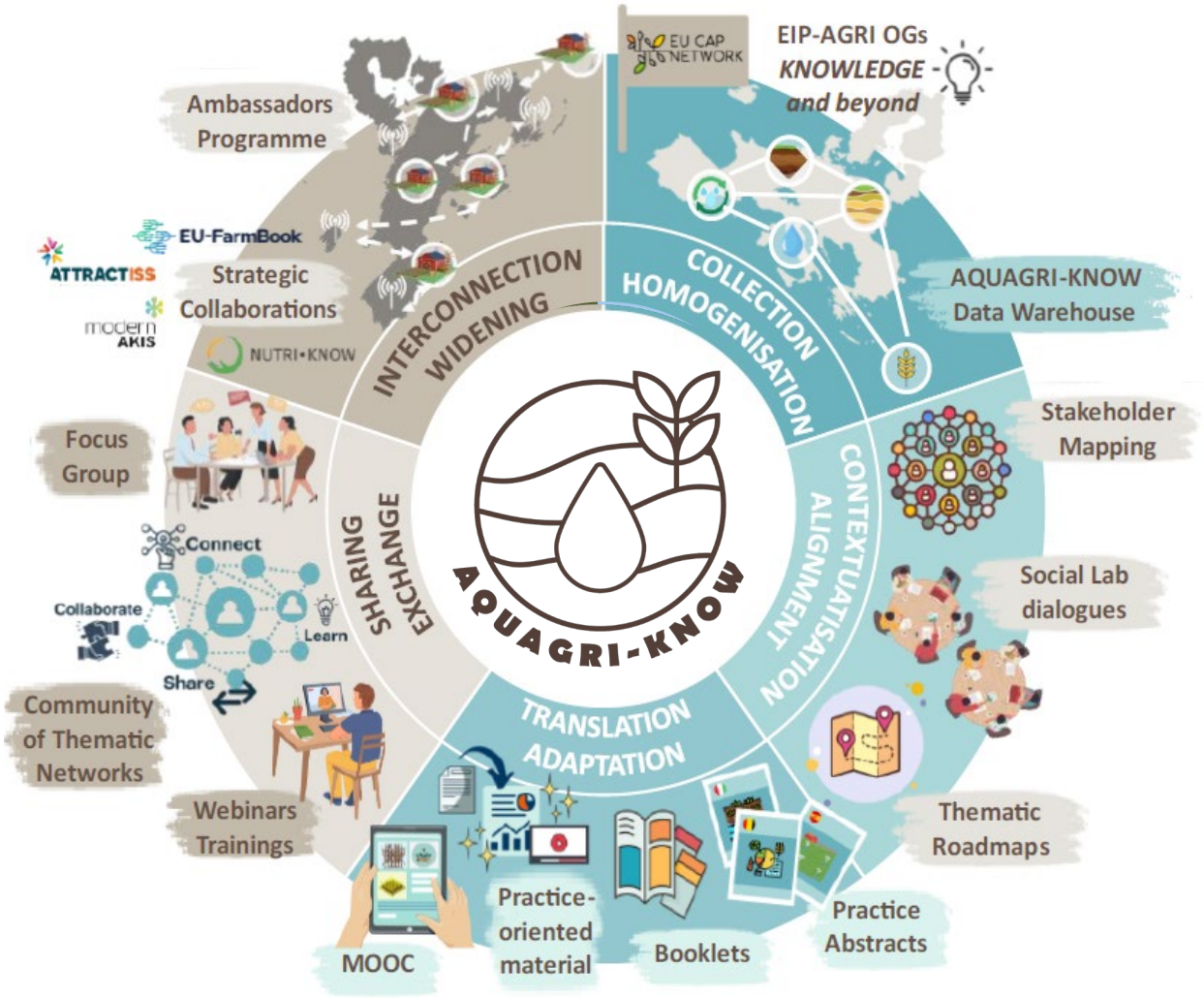


AQUAGRI-KNOW

Our Methodology

AQUAGRI-KNOW will build-up practical knowledge through a five-step methodology:

1) Knowledge collection & homogenisation
2) Contextualisation & alignment
3) Translation & adaptation
4) Sharing & exchanging
5) Interconnecting & widening



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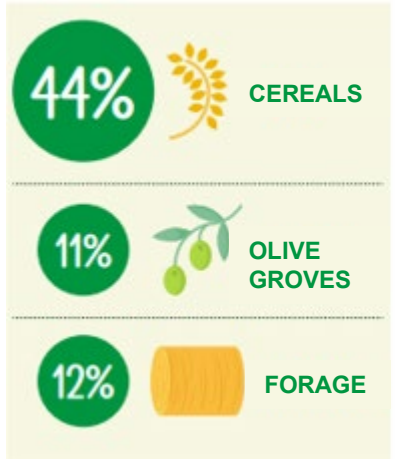
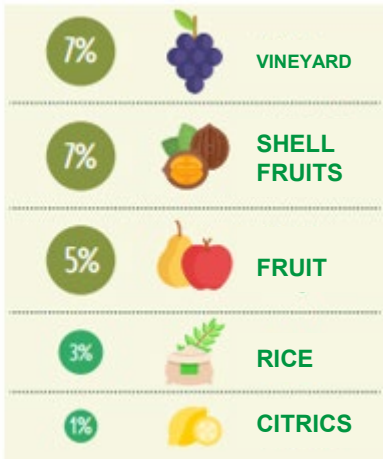
Catalonia (ES) context

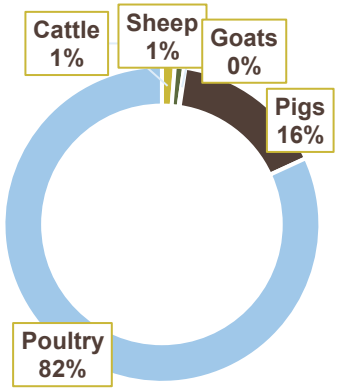
44% of the region's total land area is Agricultural Area with 57.000 farms

25% of the total area is for crop production crop area



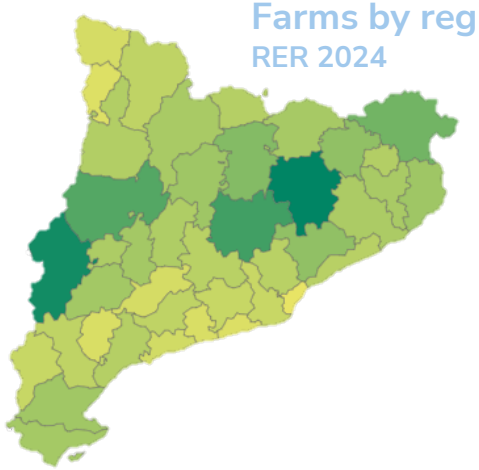


Num. Animals by specie. Idescat 2020



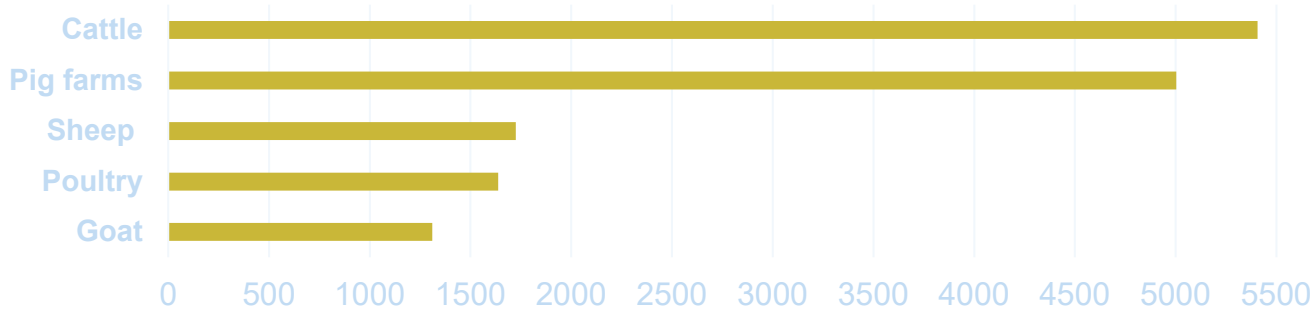
46% of the total farms are livestock

Farms by region.
RER 2024



Mínim — Màxim

Num. of farms per animal production type. RER 2024



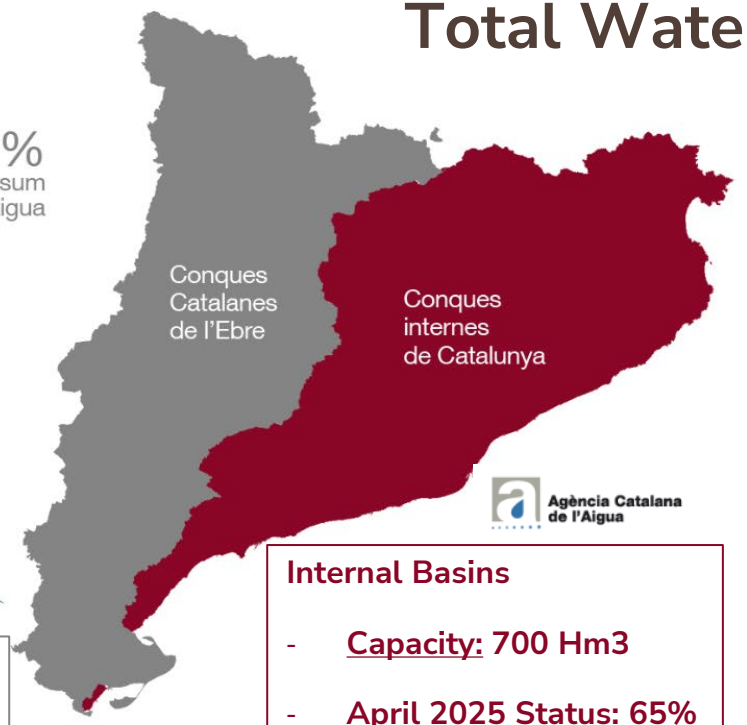
AQUAGRI-KNOW

Catalonia (ES) context

Total Water Consumption: 575 Hm3/year

48% del territori
8% de la població
60% consum d'aigua

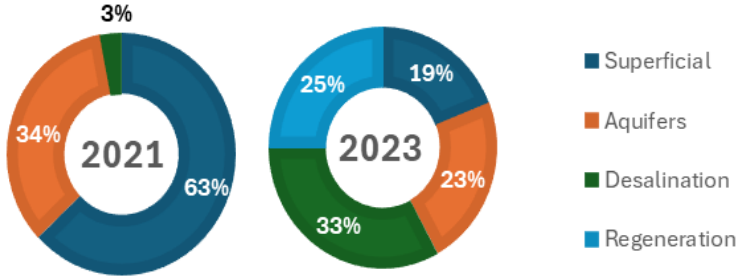
altres 5%
agrícoles 95%



52% del territori
92% de la població
40% consum d'aigua

domèstics 44%
industrials 20%
agrícoles 36%

Water Origin Internal Basins



Sever drought period - Emergency status

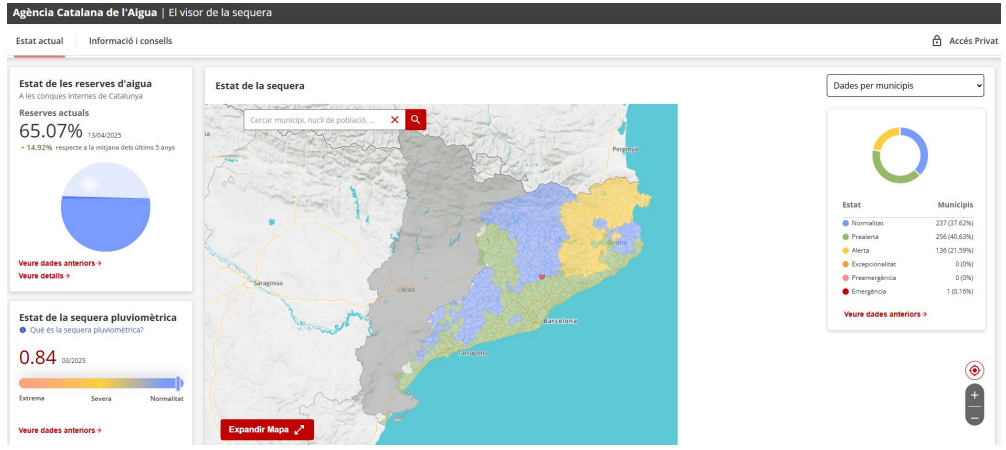
Internal Basins

- Capacity: 700 Hm3
- April 2025 Status: 65%

Ebre Basins

- Capacity: 1.800 Hm3
- April 2025 Status: 85%

Source of all data coming from ACA and CHE



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What’s broken and who is paying for it?

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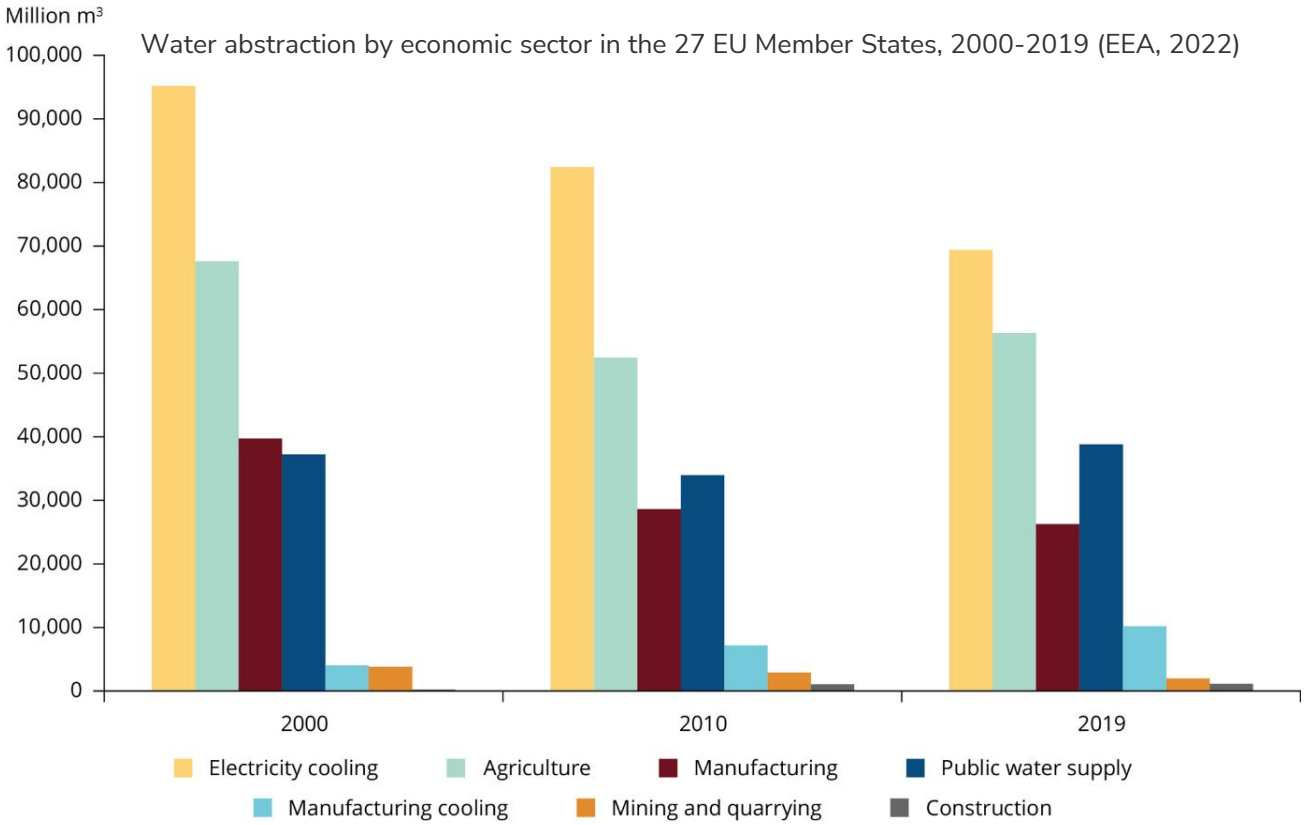
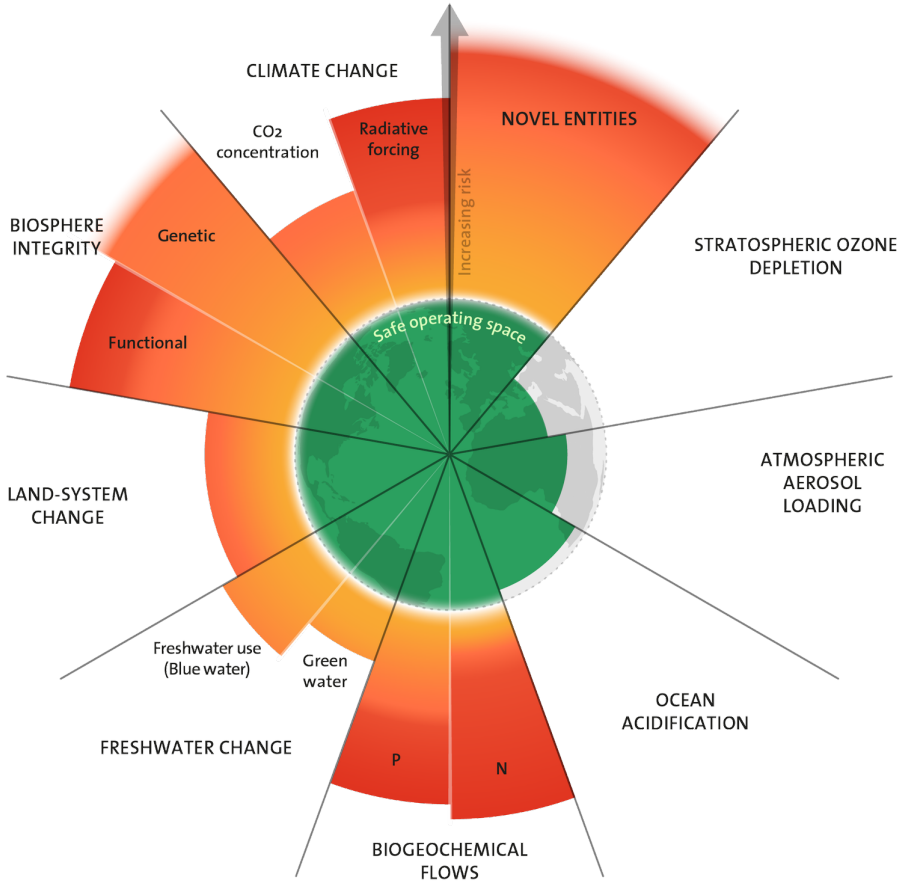
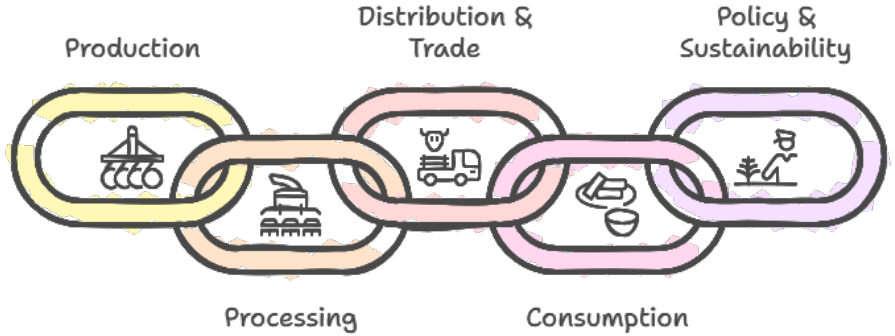
Systemic Challenge





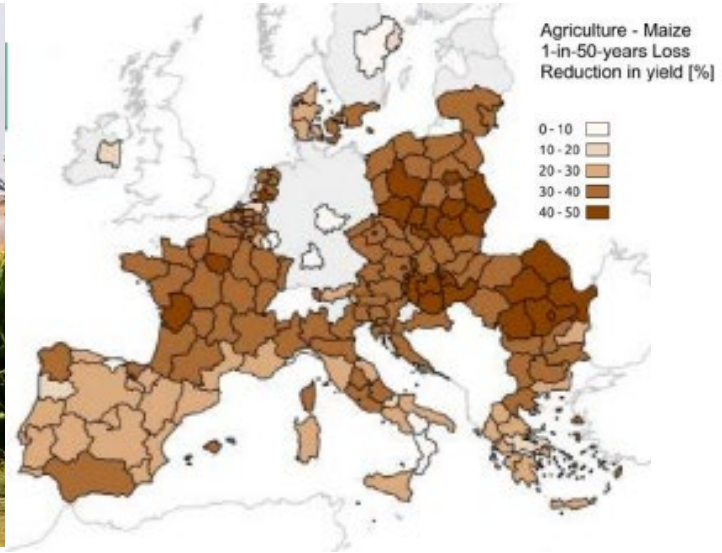
https://environment.ec.europa.eu/topics/water/water-framework-directive/implementation-reports_en
https://www.stockholmresilience.org/research/planetary-boundaries.html

Agri-food Systems



Rain-fed agriculture

Irrigated agriculture



Rossi, L., Wens, M., De Moel, H., Cotti, D., Sabino Siemons, A.-S., Toreti, A., Maetens,W., Masante, D., Van Loon, A., Hagenlocher, M., Rudari, R., Meroni, M., Isabellon, M., Avanzi, F., Naumann, G., Barbosa P. - European Drought Risk Atlas, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/608737, JRC135215.

> 40 years of negative impact...

ENVIRONMENTAL

- Loss of biodiversity
- Climate change
- Soil and water depletion

SOCIAL

- Generational decline
- Rural depopulation

...for the primary sector!

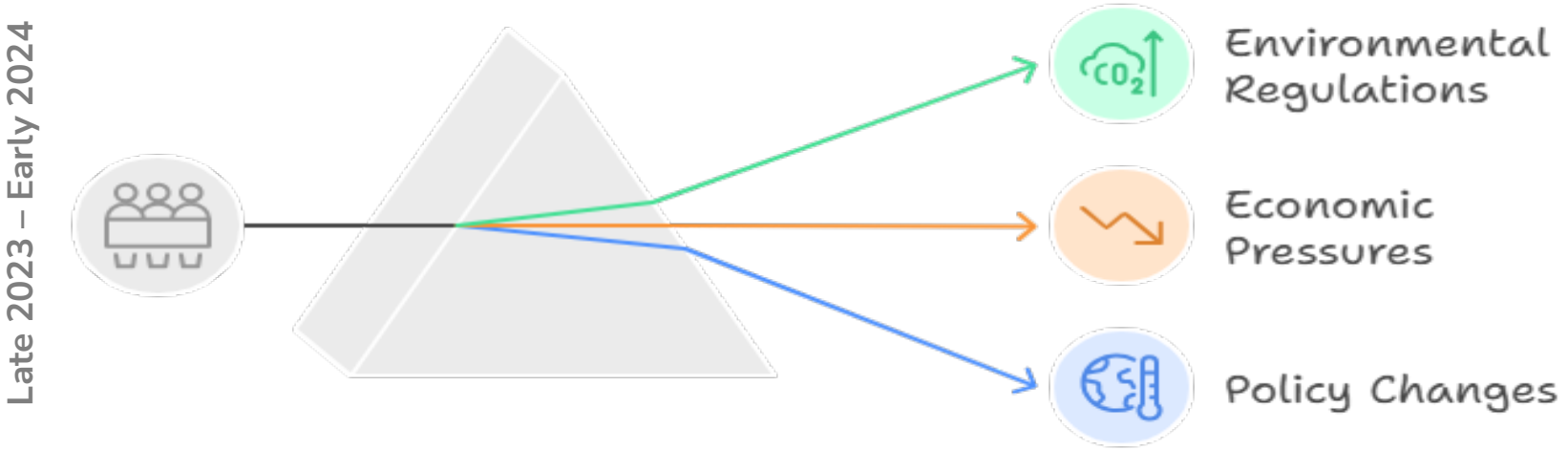
ECONOMIC

- Declining farm numbers
- Price volatility
- Income challenges

POLICY

- Ineffective reforms
- Global inequities

EU farmers protests

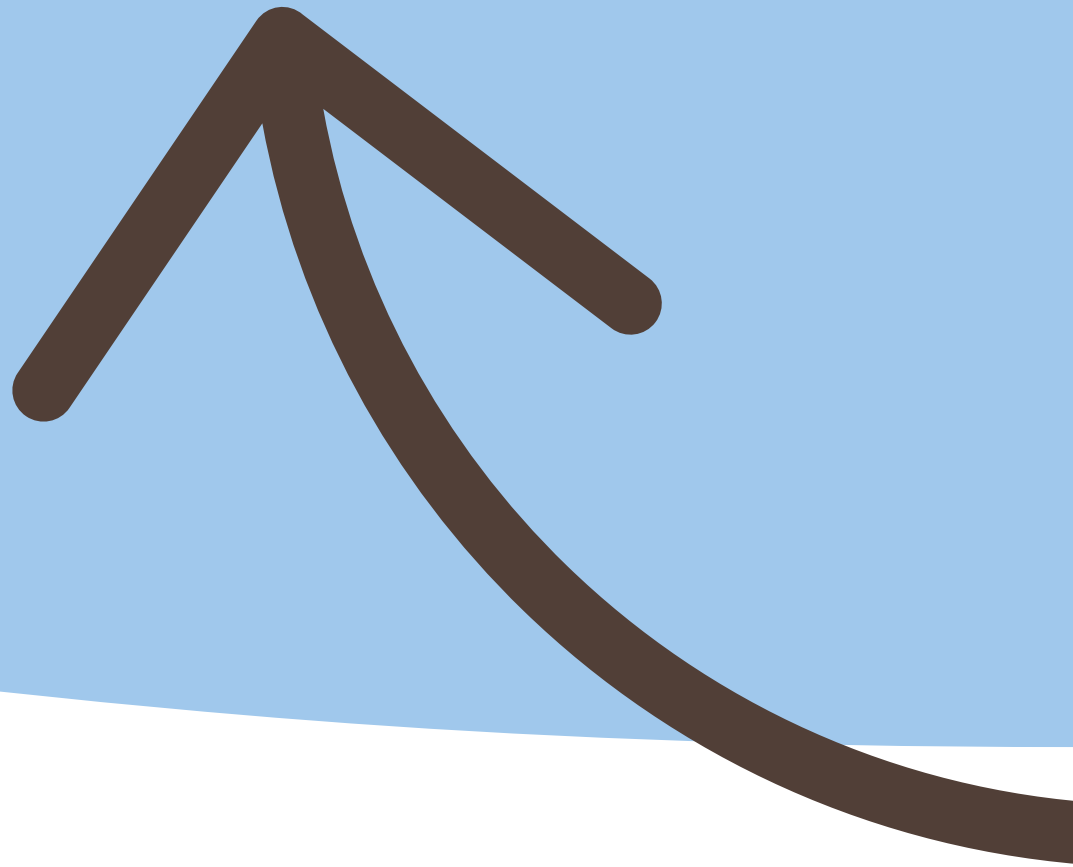


<u>THE NEED TO CO-DESIGN A NEW PARADIGM FOR THE FUTURE OF FARMING:</u>

1. **Innovative sustainable business models:** enhance local and Small-Medium Farms and support climate change adaptation and coordination
2. **Food sovereignty system:** believe in our own agri-food systems. Increase self-sufficiency.
3. Understand that **sustainable farming practices** are possible: agriculture and nature should always be hand in hand. Enrich territories.
4. **Fair prices:** added value chain.
5. **Reduce bureaucracy & increase efficiency:** it does not mean less regulation but well implemented and digital support.
6. **Access to land & resources**: specially to young farmers and reducing macro projects speculation.

REVOLTA PAGESA!

Why water management matters?



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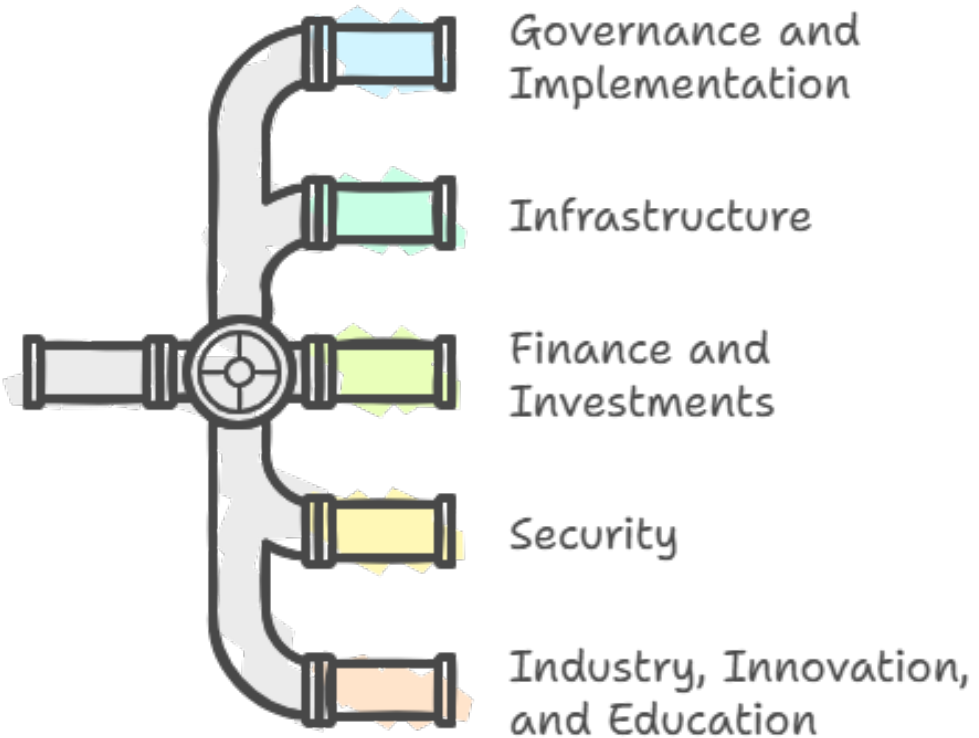
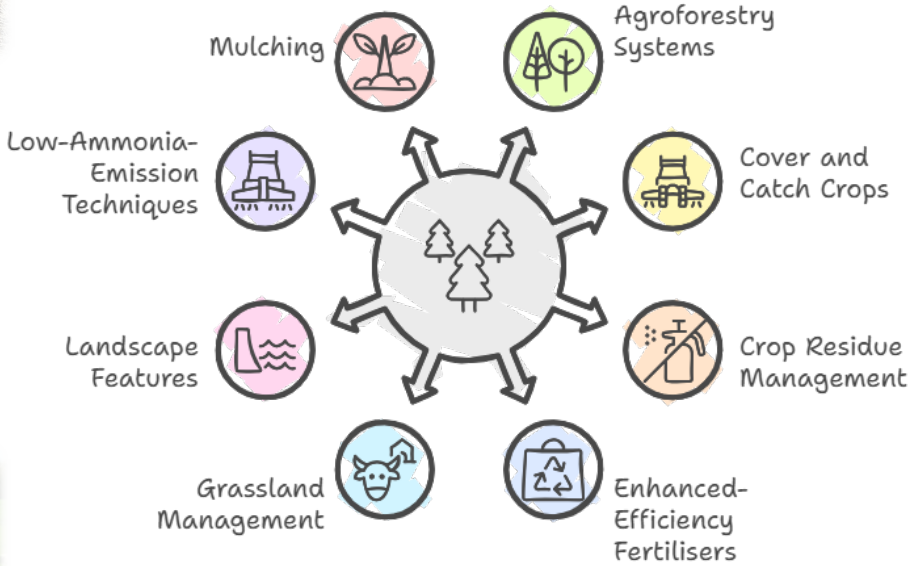
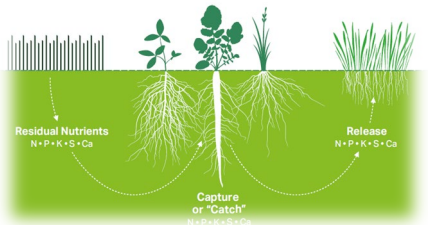
EU Water Resilience Strategy

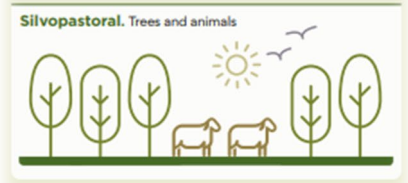


Farming practices improving sustainable water management

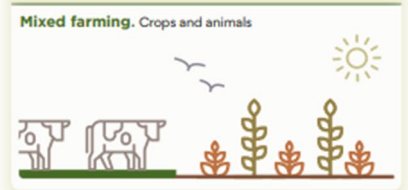




Agroforestry Systems are the deliberated combination of woody vegetation (trees and/or shrubs) in livestock or agricultural productive systems. Their aim is to obtain a benefit from the ecological and economic interactions.



Mixed Farming Systems are the growing of food or cash crops, feed crops, and livestock on the same farm. The difference against agroforestry is the lack of trees in the mixed farming systems.



Bosco, S., Perez-Soba, M., Chen, M., Montero-Castaño, A., Schievano, A., Tamburini, G., Catarino, R., Guerrero, I., Bielza, M., Assouline, M., Angileri, V., Dentener, F., Makowski, D. and Terres, J.M., Scientific evidence on farming practices improving sustainable water management in agriculture, European Commission, Italy, 2024, JRC137742.
https://www.transformed-prima.eu/lighthouses
https://www.transition-med.org/
https://www.nutri-know.eu/project/

Sailing the river

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Currently engaged EIP-AGRI OGs

Country	Partner involved	EIP-AGRI OG Efficient Water Management Strategy			
		S1 water use	S2 water smart crops	S3 water-soil interface	S4 water reuse
BE	UGENT	Water Reserve			Waterketen
	INAGRO	H.W. Happy Cows			
IT	CREA	Innovare			
	HORTA		Innovalegumi	Nitrati Ferrara	
PL	IUNG		Water 4 Kuyavia Nova Trawa	SatAgro	
	CDR			SataGRO	
CY	AGTIV			Oliver Nic Vegs	
ES	UVIC				Re-Aqua G. Terragrisa

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Make good practice the new norm!

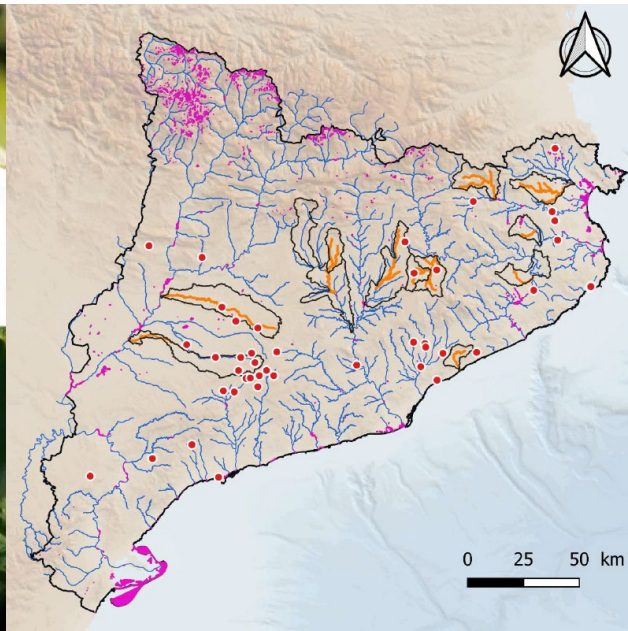
Nature-based solutions

Regenerative agriculture

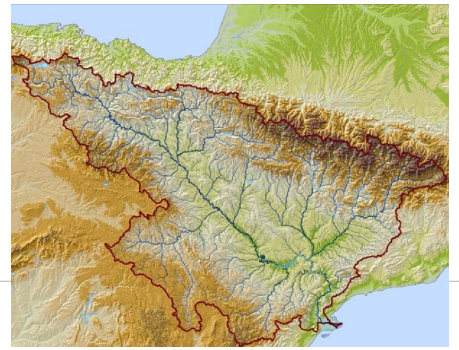
Carbon farming

Sustainable perennial crop species

Tailor-made fertilizers



Governance models



National level

Congress of Deputies
Legislative and judicial

General State Administration
Policy coordination

Ministries

Ministry for Ecological Transition and the Demographic Challenge
Drafting state legislation on water matters

Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente

TS

WATER

NUTRIENT

Secretary of State for the Environment
Definition, proposal and implementation of the Ministry's policies on water and management of the public hydraulic domain

General Directorate of Water (DGA)
Proposal and implementation of water policy

Supraregional level

Regional level

Hydrographic Confederations

Drafting state legislation on water and management of inter-community watersheds

Ebro Hydrographic Confederation (CHE)
Hydrological planning, water management, its channels and the operation and maintenance of hydraulic works within the Ebro demarcation.

Government of Aragon

Autonomous communities (CCAA)
Land use planning, agriculture, environment, tourism, health and hygiene

Government of Catalonia

Department of Agriculture, Livestock and Food (ARAGON)

Department of Environment and Tourism (ARAGON)

Department of Territory, Housing and Ecological Transition (CATALONIA)

Department of Agriculture, Livestock, Fisheries and Food (CATALONIA)

Secretaría de Transición Ecológica

General Secretariat

Secretary of Food

General Directorate of Agri and Livestock

Aragonese Water Institute
Construction of infrastructure, execution of sanitation and purification works.

National Water Commission of Aragon

Catalan Water Agency
Planning and management of internal basins, Concessions, vector reports for livestock activities.

culture

directorate General of Agriculture

cultural Environmental Management Service

Directorate General for Food Quality and Safety
Manure management and accreditation and control procedures

Directorate General for Rural Development
Fertilizer plan, ZN management, RD sustainable nutrition

action plan measures Nitrate Directive in vulnerable areas

clear

Regional offices

Farms, cooperatives and associations

Local level

User communities

Local administration

Research and technology centres

Companies and subcontractors

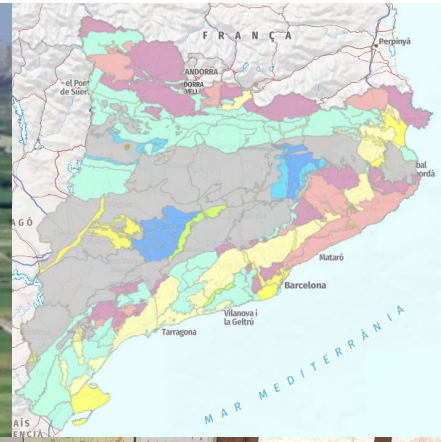
Town halls

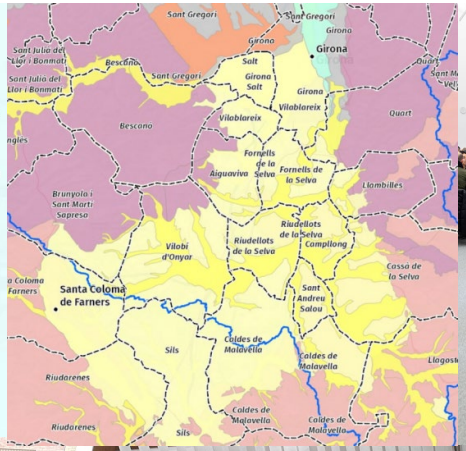
Agricultural Unions

Livestock manure management centres

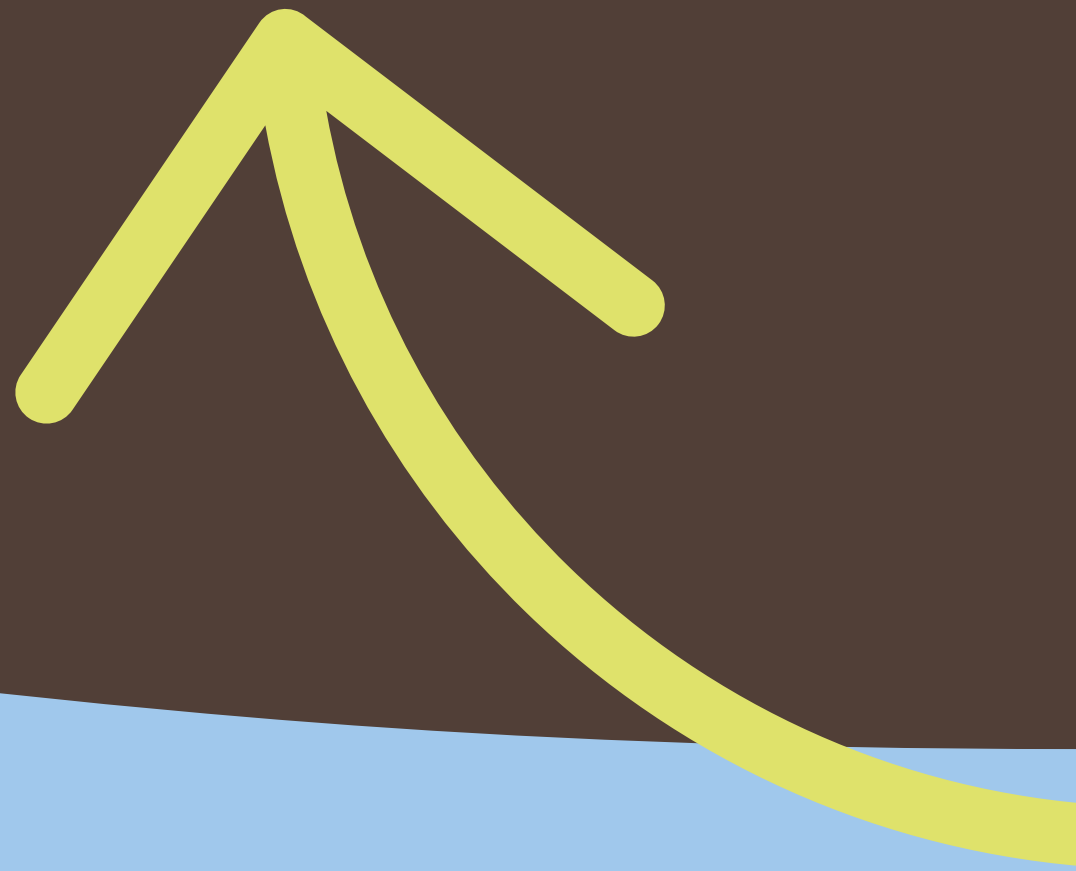
Fertilizer companies

The importance of the multi-level & multi-actor approach!





Are we ready?



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Funded by the European Union

Build an attractive agri-food sector

- Review the unfair trading practices rules and common market organisation (CMO) Regulation
- Propose a fairer, simpler and targeted common agricultural policy
- Enhance the EU Agri-food Chain Observatory
- Present a bioeconomy Strategy
- Build an ambitious investment agenda
- Deliver a Generational Renewal Strategy
- Launch an EU Observatory on Farmland

Public consultations contributions!

Feedback reference	F3524123
Submitted on	04 March 2025
User type	Academic/research Institution
Organisation	BETA TC- UVic/UCC
Organisation size	Large (250 or more)
Country of origin	Spain
Initiative	European Water Resilience Strategy

> "The BETA Technological Centre (BETA TC) is a 10-year research centre dedicated to providing innovative environmental solutions in the areas of circular bioeconomy, applied ecology, sustainable food and farming systems, and water reuse. The centre actively contributes to the European Water Resilience Strategy (WRS), intending to ensure the safe reuse of treated wastewater for agricultural irrigation, aquifer recharge, and industrial applications, while maintaining robust risk management (https://betatechcenter.com/). As part of our ongoing efforts, BETA TC actively contributes to WRS, supporting the safe reuse of treated wastewater for irrigation, aquifer recharge, and industry with strong risk

- The WRS should harmonize regeneration of industrial wastewater for irrigation initiatives across Europe, ensuring clear and consistent technical, environmental, and health standards.
- The WRS should define a regulatory framework specifying which contaminants must be monitored based on water reuse applications.
- New governance models must be established to create dedicated spaces where actors can engage in open dialogue, align strategic priorities, and co-develop solutions that account for regulatory constraints and real-world needs

"We have to make a collective effort *to build a thriving sustainable and circular bioeconomy. This consultation is a key channel to gather as many ideas as possible to shape the* ***upcoming Bioeconomy Strategy****, reflecting the needs and aspirations of citizens, companies, farmers, foresters and other stakeholders. I invite all concerned parties to contribute."*

AQUAGRI-KNOW

Beneath the surface

AQUAGRI-KNOW

About AQUAGRI-KNOW

Empowering farmers with practical knowledge and innovative solutions for efficient on-farm water management.

Get in touch

aquagri-know.eu

info@aquagri-know.eu

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Thank you for your attention

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