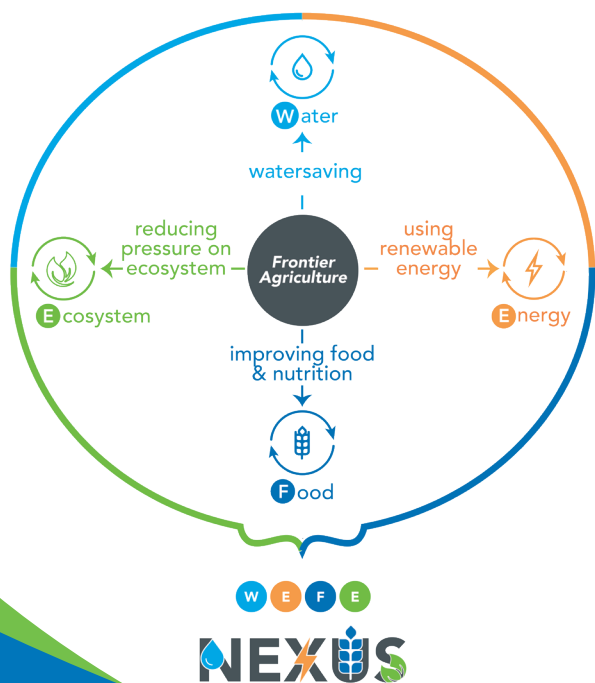


What is Frontier Agriculture?

Frontier agriculture is an innovative farming approach that uses advanced technologies like hydroponics, aquaponics, insect farming and vermicomposting to improve resource efficiency and sustainability. It aims to address challenges in traditional agriculture, promote food security and reduce pressure on water, energy and land resources.



What is WEFE Nexus?

The WEFE Nexus refers to the interconnectedness of water, energy, food, and ecosystems, highlighting the need for integrated approaches to address their interdependencies and achieve sustainable resource management.

Pushing the Frontiers of Climate-Smart Agriculture in the Mediterranean

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Impact of Climate-Smart and Water-Saving Frontier Agriculture on the WEFE Nexus in Arid Mediterranean Regions



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FrontAg Nexus is a 3 year project bringing together 10 partners to scale up the adoption of frontier agriculture as a multi-solving intervention in different contexts, ultimately generating sustainable benefits for the WEFE Nexus and the livelihoods of the stakeholders.

Frontier Agricultural climate-smart and water saving technologies to achieve sustainable agriculture:



Hydroponics

Cultivate crops without soil, using vertical farming systems that optimize resource efficiency.



Aquaponics

Integrate fish farming with hydroponics, creating a mutually beneficial relationship between fish and vegetable production.



Insect Farming

Sustainable production of insects for animal feed and other applications, reducing reliance on traditional feed sources.



Vermiculture / Vermicomposting

Harness the power of worms to manage organic waste and produce nutrient-rich substrate and humus.



Agriphotovoltaic

Combine agriculture and solar power, enhancing energy efficiency through the integration of photovoltaic systems.

10+ Demonstration Cases in 6 Mediterranean countries



Expected Results

- Water use efficiency up to **90%** in hydroponics and aquaponics compared to conventional farming.
- Insect-based protein fish feed and humus based on upcycling of organic waste reduces the respective costs by **40-50%** in RAS/aquaponics and hydroponics.
- **33%** increased availability of fish protein through RAS/aquaponics compared to conventional aquaculture.

Who will benefit?

Farming-based stakeholders, including refugees, women and young adults

Cooperatives within the supply and value chains related to frontier agriculture



Renewable energy practitioners, policy makers

Start-ups and SMEs

- **6** (countries) X **120+** survey respondents to determine intention to engage in frontier agriculture.
- **3+** supply and value chain models for hydroponics, aquaponics, insect farming, and/or vermiculture/vermicomposting.
- **84+** stakeholders, innovation actors related to the 10+ demonstration cases.
- Cross-sectoral and sufficiently interdependent **WEFE** policy roadmap for frontier agriculture.