

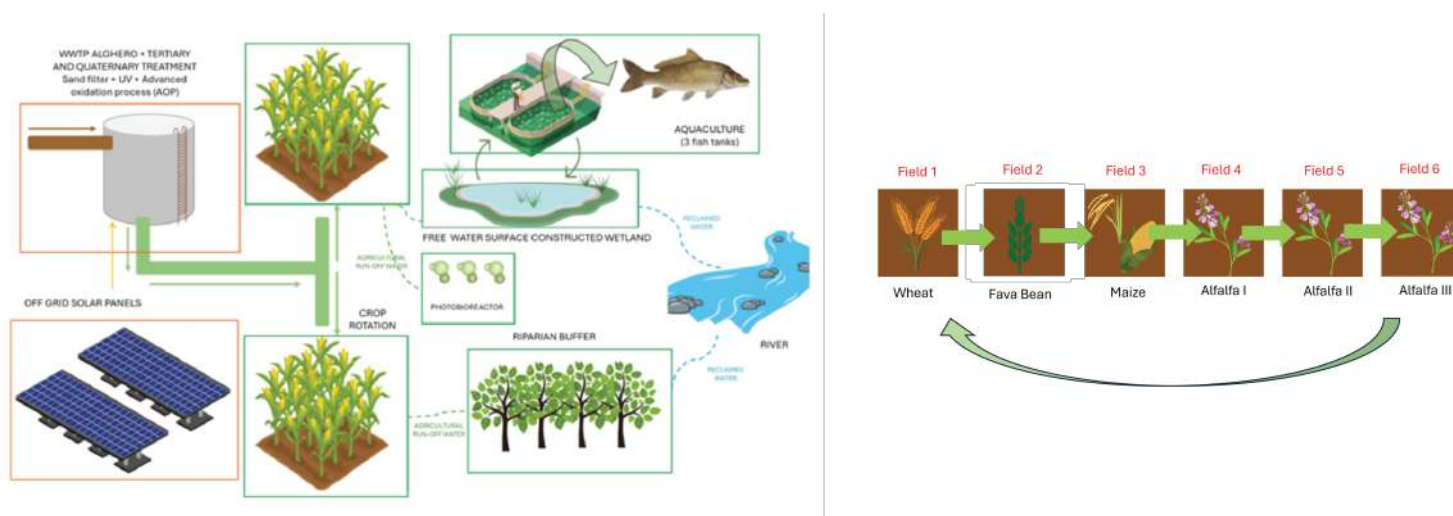
FACTSHEET | DEMO3 ALGHERO, ITALY

DECARBONISATION OF AGRICULTURAL PRACTICES IN SARDINIA



What is this demonstration designed to do?

This DEMO in Alghero, Italy, is designed to promote sustainable agriculture and water conservation through an integrated Nature-based Solutions (NbS) system covering about 1,5-2 hectares of peri-urban private land. The system combines several NbS to reduce water demand, improve the quality of treated wastewater, and minimize the impact of agricultural drainage and runoff on local water bodies.



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KEY FEATURES INCLUDE:

- Use of treated urban and domestic wastewater for irrigation, further purified by advanced oxidation, UV disinfection, and sand filtration to meet EU “Class A” water quality standards.
- Renewable energy from solar panels powers the irrigation and treatment systems.
- Five-year crop rotation with wheat, faba bean, maize, and a perennial forage crop (such as alfalfa), using organic fertilizers and incorporating crop residues to maintain soil fertility.

NBS COMPONENTS THAT WILL BE INCLUDED:

- **Free water surface constructed wetland:** Treats agricultural drainage and runoff before discharge, effectively reducing nutrients and contaminants, and part of the treated water is reused for aquaculture.
- **Photobioreactor (pilot):** Uses microalgae to treat runoff water from crops, removing nutrients and pathogens while producing biomass that can be used for bioenergy or fertilizer.
- **Riparian buffer:** Filters drainage and runoff water before it enters rivers or surface waters, further protecting aquatic ecosystems.
- **Aquaculture:** it will be used as a water quality control system for treated sustainable wastewaters.



This approach aims to decarbonize agriculture, enhance water and nutrient cycles, and protect sensitive water bodies from eutrophication, all while supporting efficient and sustainable food production in the Alghero and Calich lagoon areas.

Identified Nature-based Solutions



The identified Nature-based Solutions are those mentioned above, specifically:

- Free water surface constructed wetland
- Photobioreactor
- Riparian buffer
- Aquaculture

Co-benefits

Co-benefits of this DEMO are the decarbonization of agricultural practices, by using renewable energy and energy optimisation, and sustainable water treatment and reuse, by multiplying the usages of the same water for different purposes

Sustainable Development Goals



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