

Navigating the Landscape: Policy & Readiness for Frontier Agriculture in the Mediterranean (WEFE Nexus Lens)

Problem/Challenge

The widespread adoption of frontier agricultural technologies (aquaponics, hydroponics, insect farming) in the Mediterranean is constrained by inconsistent readiness levels and a lack of integrated Water-Energy-Food-Ecosystem (WEFE) Nexus policies. Key challenges include high startup costs, regulatory hurdles, and insufficient integration of renewable energy in agricultural innovation.

Our Solution/Key Finding

FrontAg Nexus research highlights that accelerating frontier agriculture adoption necessitates targeted policy interventions and a strategic approach to enhancing readiness levels. Coherent policy frameworks, specific incentives, and robust R&D support are crucial to bridge the gap between technical feasibility, business readiness, social readiness (TRL, BRL, SRL), and practical implementation.

Benefits & Impact

Implementing supportive policies and improving readiness lead to a more streamlined regulatory environment, reduced investment risks, and increased market penetration for sustainable agricultural innovations. These foster enhanced cross-sectoral collaboration, aligns agri-food systems with regional sustainability goals, and strengthens overall WEFE Nexus resilience by ensuring efficient resource governance and food security.

Practical Recommendations

Policymakers: Formulate explicit WEFE Nexus strategies, offer financial support (e.g., subsidies, grants) for early adoption, and streamline permitting processes. Adapt the Common Agricultural Policy (CAP) to better support these innovations for a more sustainable food system.

Applicability Box

Theme: Policy, Governance & Readiness for Sustainable Agri-food Systems

Keywords: Policy Frameworks, Readiness Levels, WEFE Nexus Governance, Incentives, Regulations, Investment, Innovation

Context: National and regional policy formulation, agricultural sector investment, research and development strategies, international cooperation.

Required Resources: Political will, inter-ministerial coordination, targeted funding, and stakeholder collaboration.

Scalability: Policy recommendations are applicable across different governance levels, from local to international.

Readiness Levels: Addresses how policy can influence and accelerate the transition of technologies from high TRL to higher BRL and SRL [2].

Risk Management/Considerations: Policy inertia, conflicting sectoral interests, resistance to regulatory changes, and lack of comprehensive data for evidence-

Industry & Researchers: Prioritize cost reduction and demonstrate the long-term viability of these systems through pilot projects and case studies.

References and Further Information

- [1] UM6P, "D1.2: Supply and value chain analysis of climate smart and water saving agri-food production systems," FrontAg Nexus Project Deliverable, Ben Guerir, 2024.
- [2] E. Appolloni, V. Cerasola, G. Pennisi, W. Biru, G. Buchenrieder, T. Uyar and Y. Yavuz, "D1.1: Systematic literature review (SLR) of frontier agriculture systems and empirical evidence in the Mediterranean Region," FrontAg Nexus Project Deliverable, Bologna, 2023.
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About this practice abstract

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FrontAg Nexus: The project was launched in May 2023 to promote sustainable agri-food practices by applying the Water-Energy-Food-Ecosystems (WEFE) Nexus approach. Focusing on six Mediterranean countries—Israel, Italy, Morocco, Tunisia, Turkey, and Jordan—the project addresses climate change, resource scarcity, and food insecurity through collaborative research and innovation.

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