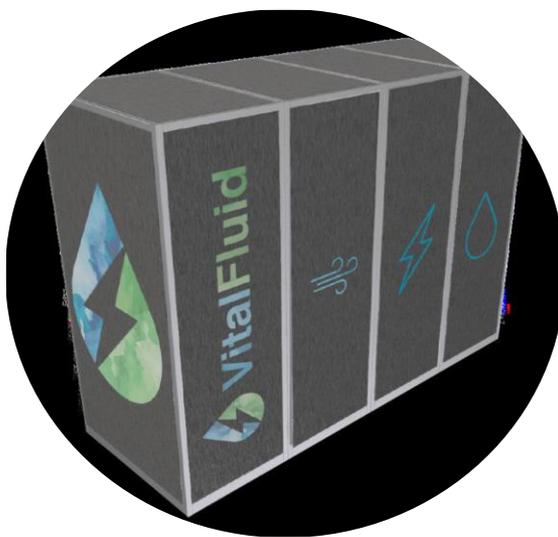


A Roadmap for Natural Nitrogen introduction in Spanish organic horticulture

Results of Seed Money Project nr. TKI SMP21.30

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Problem

- Fertilization (N) is challenging in organic horticulture
 - the use of mineral nitrogen is not allowed
 - N must come from microbiological fixation/mineralization processes in organic matter in the soil
 - Nitrogen is the main essential element for plants
 - Component of proteins, chlorophyll, hormones and DNA
 - Integrant of enzymes → essential role in metabolism
 - Limiting N-supply is often the cause of the lower productions in organic horticulture compared to traditional
- There is a need for additional solutions to provide N to plants compatible with the principles of organic farming

Opportunity

- Spain has the biggest surface of certified organic greenhouse production in Europe
- VitalFluid develops plasma reactors that enable nitrogen fixation in water from ambient air



→ The introduction of this “Natural Nitrogen” could solve fertilization challenges in the Spanish organic greenhouse sector.

Aims of the Seed Money Project

- To find out what is the best way to introduce Natural Nitrogen in the Spanish Organic Greenhouse Sector
 - Analysis of the organic greenhouse Sector in Spain (identify key actors/ organizations / institutions)
 - Check on suitability of the solution offered by VitalFluid and partners for the Spanish organic Greenhouse Sector
 - Gain Knowledge of the local and national rules and regulations that would be applicable
 - Find local key partners for possible follow-up

Consortium

■ VitalFluid

- Initiator of the project
- Supplier of Plasma Equipment to fixate Natural Nitrogen from the atmosphere in water



VitalFluid

Global Leader in Plasma Activated Water Applications

■ Doornebosch advies

- Specialised in certification



■ Van Waarde

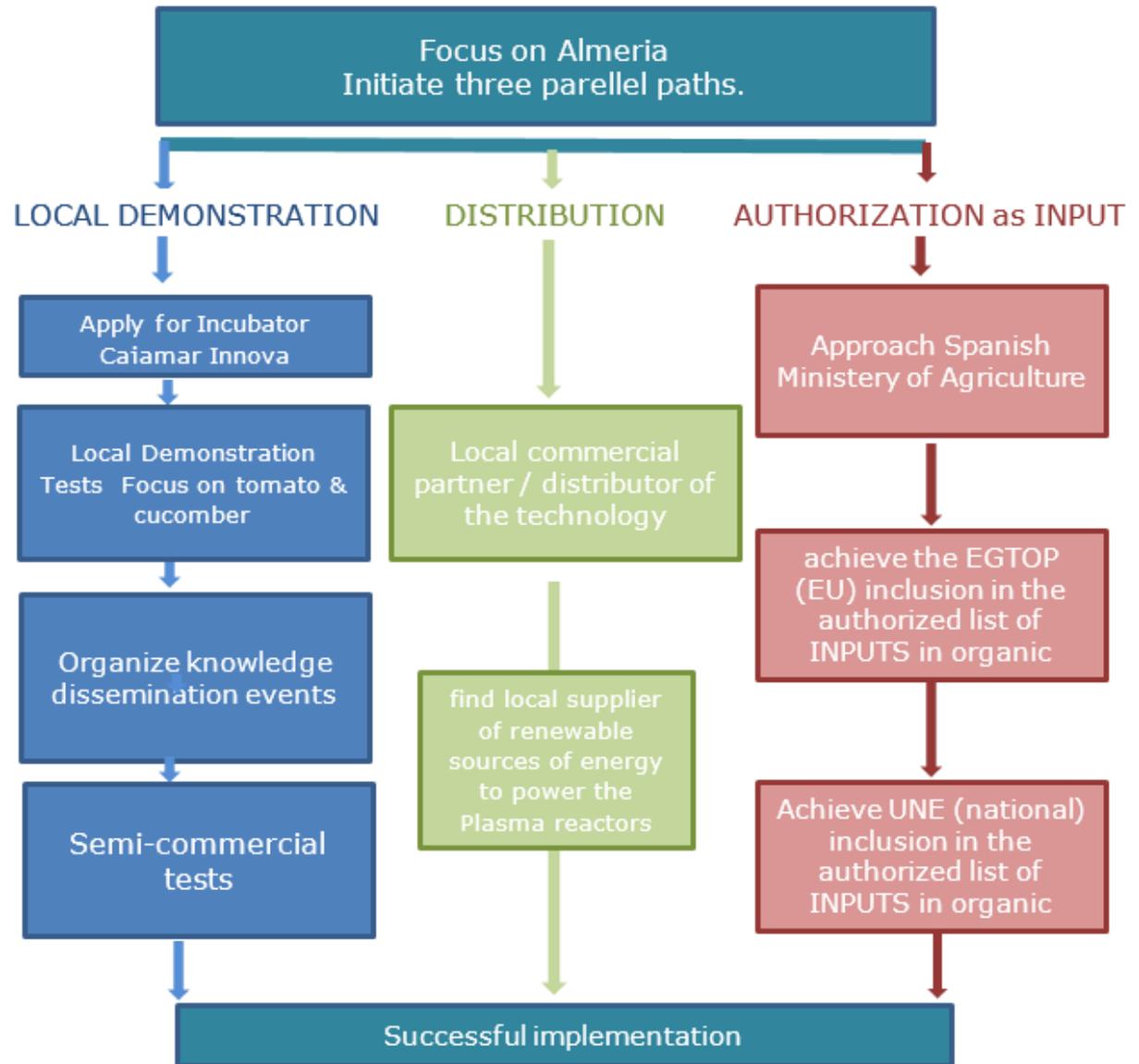
- Specialised in Business

VanWaarde

Results

- A description of the organic greenhouse horticulture sector in Spain, with focus in the province of Almería
- The proposition fits well in this sector. Potential users willing to adopt it for solving in the N-fertilization challenges. Conditions for adoption:
 - Local demonstration tests must show
 - Effects on yield, costs, application
 - Effects on isotopic footprint
 - Effects on soil microbiome
 - Technology needs to be approved as input
- A Road Map / stepwise approach is suggested

Roadmap to introduce Natural Nitrogen



Follow up – PoP under local conditions

- A proposal for conducting a “Proof of Principle” test under local conditions will be submitted on the next call of the “Incubator for Water High-Tech Businesses” of Cajamar Innova (80% EU co-funded instrument of the ERDF). (opens 2nd half of December)
- Partners



VanWaarde



Follow up – cooperation with local supplier

- Cooperation with local supplier of irrigation / water treatment equipment will be intensified, leading to local on-site semi commercial demonstration tests at iconic farms.



Follow up – achieve inclusion NN in EGTOP

- Conversations will be started through the Spanish Ministry of Agriculture to achieve inclusion of NN in EGTOP, from where National inclusion in Spain as authorized input to be used in organic horticulture might follow.



Thanks for your attention

Questions?

