11-12 FEBRUARY 2025

RABAT, MOROCCO

Institut Agronomique et Vétérinaire Hassan II

BONEX

SURE NEXUS

WEFE NEXUS INTERNATIONAL CONFERENCE

EXPLORING AND BRIDGING NEXUS FOR A SUSTAINABLE FUTURE

PRIMA IN THE MEDITERRANEAN AREA

These projects are part of the PRIMA programme supported by the European Union.

WEFE NEXUS INTERNATIONAL CONFERENCE

Day 2 – 12th February 2025

PILLAR 3: WEFE NEXUS SOLUTIONS

INNOVATIVE SOLUTIONS SHOWCASING DEMONSTRATION CASES FROM BONEX/SURENEXUS

DP Lebanon

Solar hydroponic unit Project

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DP Progress
Lebanon

Rabat, Morocco – February 13, 2025

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Intervention implemented in the DP

- System installed at AUB in September 2024: Greenhouse, Solar Panels, and Hydroponics unit
- System started running in December 2024

Intervention implemented in the DP

- 24 rotating towers, each has 42 plugs
- 1,008 plants in total

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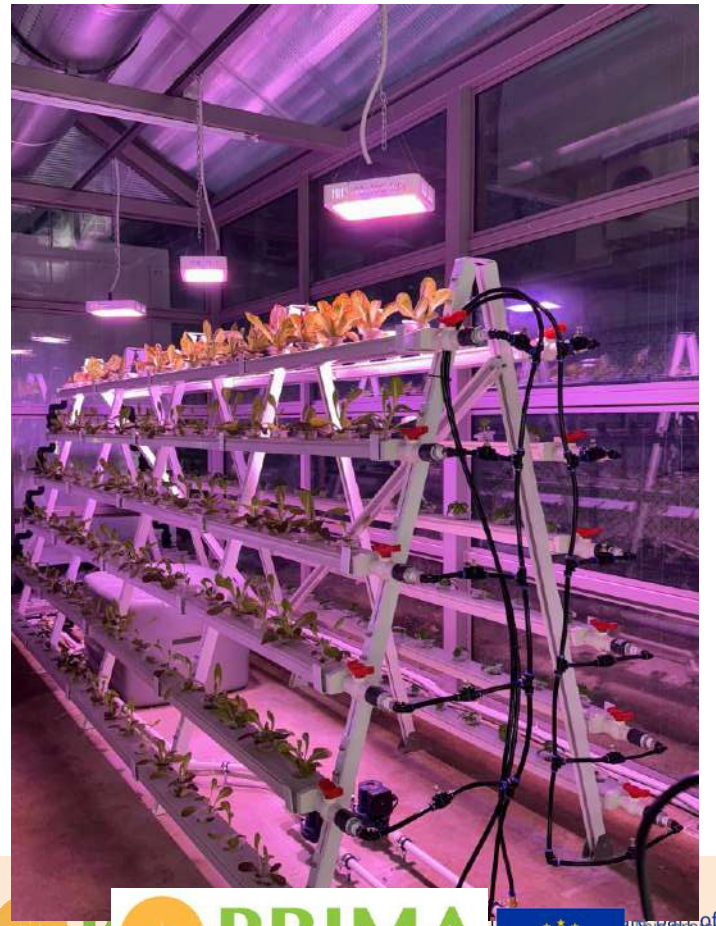
Intervention implemented in the DP

- 2 A-shaped NFT Systems, each has 240 plugs
- 480 plants in total



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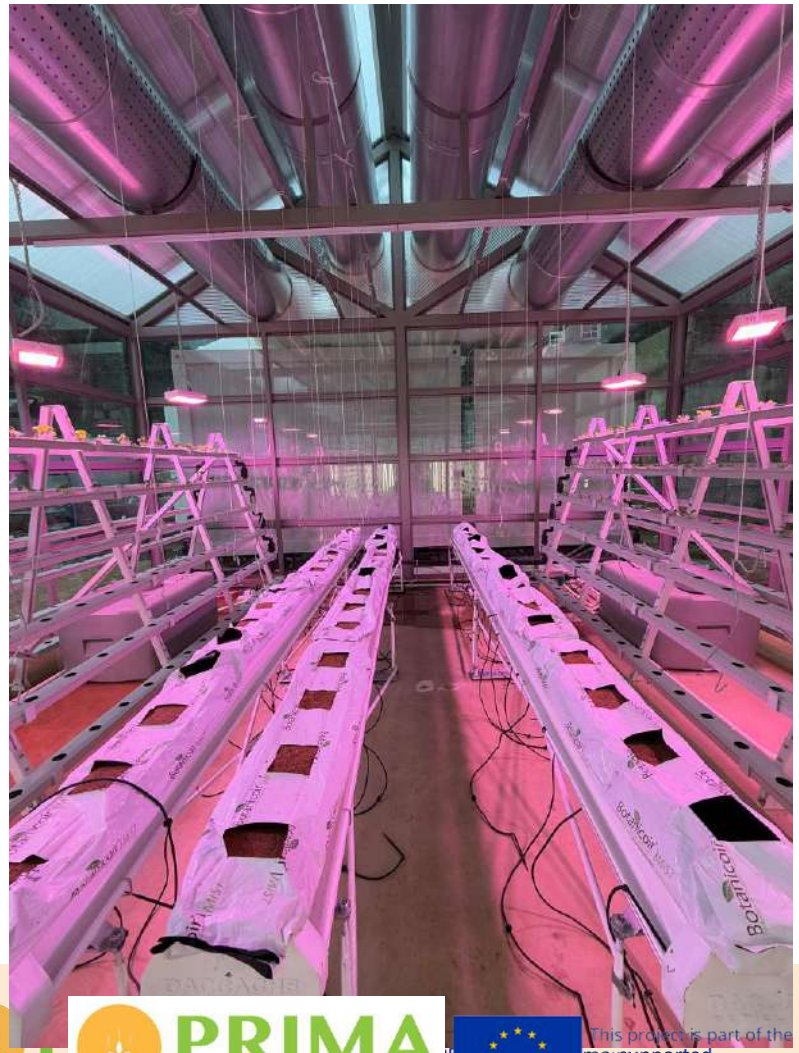
Intervention implemented in the DP

- Gutter System
- 3 rows, each has 13 openings



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Intervention implemented in the DP

- 22 solar panels
- Tank room

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REWEF Results

RE WEFe **Rapid Evaluation of Water Energy Food ecosystem nexus**

powered by FutureWater

INSTRUCTIONS | **INPUT** | RESULTS | SECTOR DETAILS

Scenarios

Scenario	Description	Show results
Baseline (B)	Current condtions of the nexus unit (Bekaa valley encompassing the Bekaa and Baalkbak-Hermel governorates)	
Scenario 1 (S1)	Development of a hydroponic system.	☑
Scenario 2 (S2)	Hydroponic system powered by solar energy.	☑
Scenario 3 (S3)	Upscaled scenario indicating expansion of hydroponic systems across the nexus unit.	☑
Scenario 4 (S4)		☐
Scenario 5 (S5)		☐

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REWEF Results

- **Synergies:**
  - Hydroponic systems **reduce ecosystem risks** by recirculating nutrients, minimizing fertilizer use and leaching.
  - Solar power makes it **more energy-efficient**, lowering energy consumption and CO2e emissions.

- **Trade-offs:**
  - **Scaling up increases food production** but also raises energy demands.
  - If solar energy **cannot fully meet demands**, CO2e emissions may rise.
  - A **balance between food production and energy use** must be assessed before upscaling.

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Cost-Benefit Analysis

In addition to the high initial cost, here are the parameters to take into consideration for the CBA:

Operational costs		units	Production		units	notes	
water supply	0.015	$/L	Food	1	kg/m2	harvested every 75 days	
nutrient supply	3.85	$/kg	Energy (solar)	35	kWh/day	22 panels, 2.8x1.3 each	
energy supply	0.25	$/kwh					

Consumption		units
Water Use	600	L/75days
Energy Consumption	100	kWh/day
Nutrient Consumption	2.25	kg/75days

Revenue Streams		units
Greens	8	$/kg

NB: The cost-benefit analysis has not been finalized yet.

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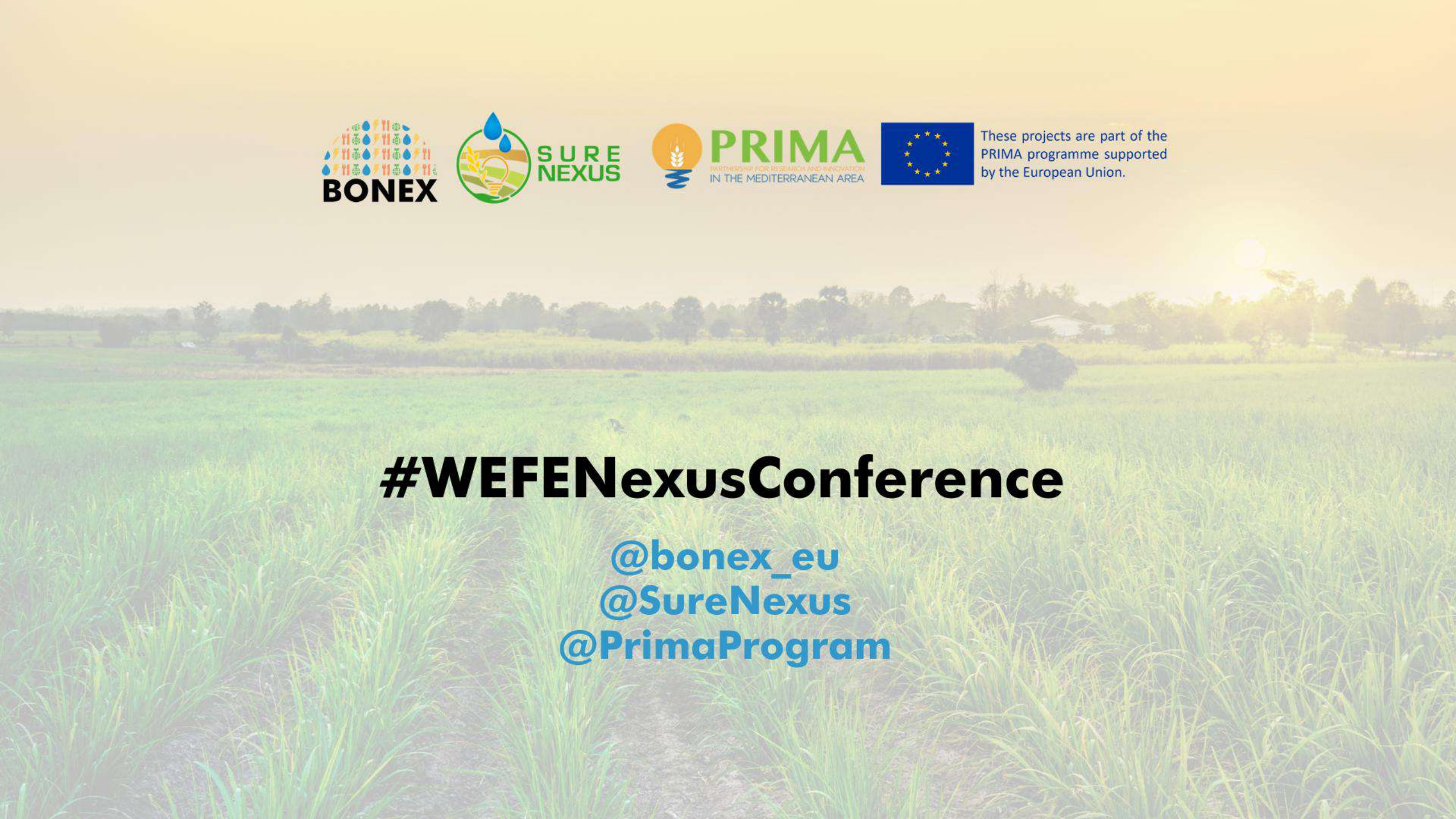
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