

Hydroponic Farming

Soilless and waterefficient production of fruits and vegetables

What is a hydroponics?

Hydroponic is a type of crop production which involves growing vegetables or fruits without soil. Different types of substrate can be used as a growing media, while the nutrients required by the plants can come from various sources, like fish excrement, manure, chemical fertilizers or artificial and organic nutrient solutions. Nutrients are dissolved in the water that circulates through the system, reducing the consumption to a minimum. In hydroponics, the environmental conditions (temperature, light, water, nutrients, pests, diseases) can closely be monitored and controlled, allowing optimal growing conditions, including locations that are not suitable for conventional crop production.

What are the main features?

Drawing on previous experience with hydroponics, the Turkana Basin Institute constructed its own system, using locally available materials such as PVP-pipes, plant pots and shade nets. Supporting structures were made by a welder. TBI uses volcanic rock mixed with coco peat as a growing media. They are currently using artificial nutrient solution, but experiments are ongoing to provide nutrients through organic substances. Systems are scalable in size and complexity and can be used from individual to large-scale level. Hydroponics allow plants to grow under optimal conditions, leading to high yields, low pest and disease rates, and reduced growing time.

What are common uses?

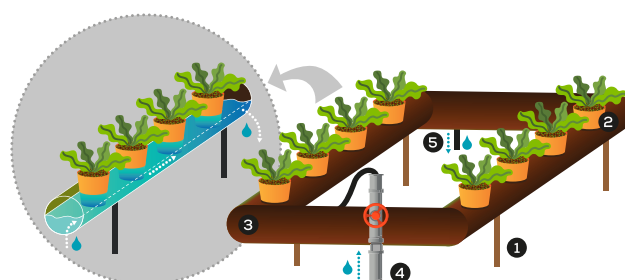
WE4F's partner uses the hydroponic system to produce different high-value and nutritious vegetables and fruits, including Spinach, Kales, Melons, Passion Fruit, Tomato, Courgette, Pumpkin or Chili.

Market Development

The market potential for hydroponics in East Africa is high, especially in settings where conventional agriculture is difficult. While do-it-yourself solutions are possible, some companies on the market also provide custom-made systems.

Project overview

Partner:	Turkana Basin Institute (TBI)
Type:	Grant Agreement
Focus:	Piloting of innovative water technologies and supporting local entrepreneurship
Duration:	10.2020-12.2022
Country:	Kenya



- ① Supporting structure
- ② Plant pots
- ③ PVP pipes
- ④ Water and nutrient input
- ⑤ Circulation system



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