



Innovative hydroponic system to save water and improve plant health

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<https://ec.europa.eu/eip/agriculture/en/find-connect/projects/innovative-hydroponic-system-save-water-and>

Geographical location:

Spain

Andalusia

Keywords:

Farming practice

irrigation

Water management

water

water use efficiency

Vegetables

Main funding source:

Private funds

Project type:

Innovative action

Starting date:

2018

End date:

2018

Project status:

completed

Website:

Webste of New Growing Sytem

Title (in English):

Innovative hydroponic system to save water and improve plant health

Language:

English

Objective of the project (native language):

NA

Objective of the project (in English):

Almería is the driest province of Spain with 200 mm annual precipitation. Yet it hosts one of the largest vegetable production areas in Europe. Water is a great concern for farmers in the area; they have to retrieve it from several sources (brackish water from the aquifer, desalinated water,

harvested rainwater, water transfers from river basins in central Spain). Gogarsa greenhouse company has developed an innovative hydroponic system to make the most of the water available.

Contact e-mail:

ngs@ngsystem.com

Short summary for practitioners

Practice abstract 1

Short summary for practitioners (native language):

NA

Project coordinator

Contact person: New Growing System NA

Address: Paraje El Canadillar, 10 (04640) Pulpi · Almería · Spain

E-mail: ngs@ngsystem.com [1]

Phone: 0034 950 619 343

Partner category: SME

Further details

Links to other website(s):

[More information on the hydroponic system](#) [2]

Audiovisual material:

[Video on the company and the technology](#) [3]

Additional information:

The hydroponic system consists of a metallic frame which is covered by a plastic sleeve. There are openings in the sleeve where the seedlings are placed. Gutters are slung along the sleeve so as to provide moisture and nutrients to the space inside. The roots of the seedlings develop in the open air inside the sleeve, with nutrient-rich water running along the roots through the gutters and small cascades between the gutters, allowing the plants to grow bigger root systems in a more oxygenated environment. The larger, healthy root systems allow plants to better assimilate water and nutrients.

The metallic frames that hold the weight of the plants and the sleeves have a slight slope to drain the excess irrigation solution, which is collected in a tank. The excess solution is diluted with more water and more nutrients are added. Electric conductivity and pH of the re-adjusted solution is measured to detect nutrient imbalances before it is re-circulated along the sleeves. Every month, nutrient content is analysed so as to better adjust the solution.

The metal frames can easily be moved to change the set-up of the greenhouse to produce different vegetables. The plastic sleeves have to be changed every 4 years. As the water in the system is recycled, it uses 50% less water compared to a conventional hydroponic system. The optimal root growing conditions also lead to healthier plants, allowing further savings on nutrients and pesticides. The system can be implemented anywhere since it is built up with off the shelf components.

NGS hydroponic system is an evolution of the old NFT. NGS improves substantially crop productivity, energy consumption, plant health, range of crops which can be produced among many others crop parameters. It is also an optimized system for large scale use both in open air and in greenhouses.

Links

[1] <mailto:ngs@ngsystem.com>

[2] <http://ngsystem.com/en/ngs>

[3] <https://youtu.be/SIJcJr25op4>