
Improved crop health and
reduced maintenance for an
organic blueberry farm in the
Huelva region, Spain



What is the HPGen solution?

With HPGen, water treatment can be implemented in a simple and efficient way. HPGen A series is designed specifically for the agriculture market and integrates seamlessly with standard irrigation systems. HPGen produces a safe concentration of a peroxide-based oxidizer solution. This powerful solution is injected into irrigation lines, where it keeps emitters flowing and enriches the water with oxygen. This ensures an optimal irrigation uniformity, increased nutrient availability and higher yields.



Key benefits / characteristics

- On-site generation of powerful, high-purity peroxide-based solution
- Chemical-input free - Only water, electricity and air as inputs
- > 99.99 % purity Hydrogen Peroxide, no additives
- Autonomous – fully automated operation
- Cost effective – saves chemicals, storage, handling and labor
- Eco friendly – HPGen solution breaks down to pure water and oxygen

Site details

Located in the Huelva region in southern Spain, the blueberry field has an area of 24 hectares and is part of a successful organization producing high quality organic berries. The soil in the region is dry, the climate warm and organic fertilizer is used. The plants are grown directly in the soil and are irrigated with a modern drip irrigation system.



Together with the operators of the farm and leading irrigation experts, we analyzed the site and found that two main issues are hampering the production and yield of blueberries.

1. Clogging of drippers leads to non-uniform irrigation and insufficient water and fertilizer delivery to part of the crop, which results in production losses.
2. Poor dissolution of organic fertilizer in the irrigation water leads to poor soil quality, exacerbates clogging and hampers growth.



On top of this, maintenance costs for the operation are high, with replacements of dripper lines up to twice a year, as well as manpower used to identify and replace clogged drippers.

To overcome these issues, an HPGen A500 model was installed and integrated with the irrigation system. Half of the field (12 hectares) was treated with HPGen solution, while the other side remained with standard weekly treatment with chemicals.

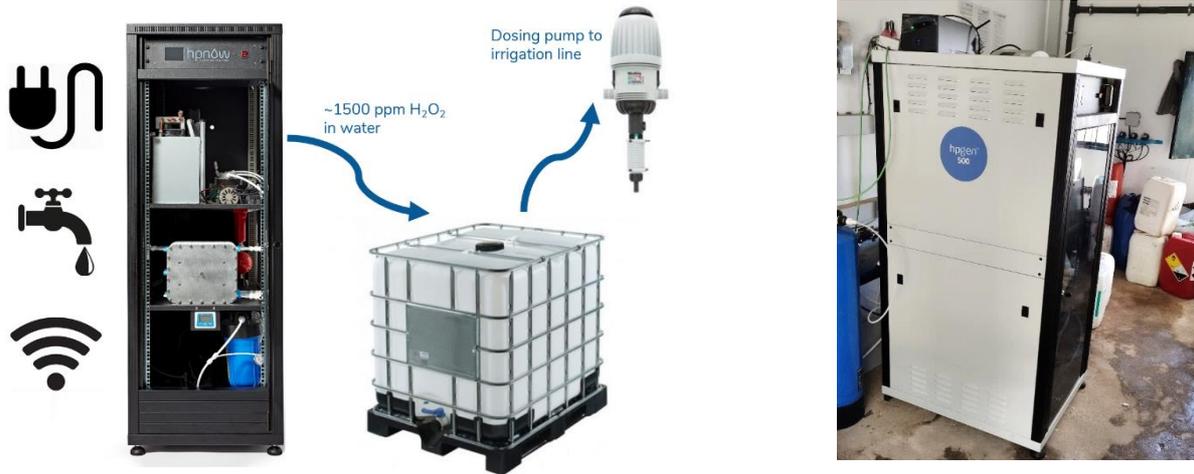
HPGen setup and dosing

The HPGen A500 was installed in the irrigation room and set to operate automatically with a reservoir. Prior to installation, the drippers were analyzed, and 30% were clearly clogged, meaning little to no water was coming through them. To overcome this, the farm personnel were regularly going through the irrigation lines to identify and replace clogged drippers, a time-consuming and costly process.

Soil quality was also analyzed and the amount of organic matter in the soil, a critical parameter for the healthy growth of the plants, was very low at 0.33%.

The HPGen was set to produce a 0.15% high-purity peroxide solution in a buffer tank.





Results of HPGen treatment

After just six weeks of running with the HPGen, soil quality was analyzed once more and found to be greatly improved. The results indicated near three times higher organic matter content. At the same time, all drippers in the treated section were unclogged vs. about 30% of drippers clogged in the untreated section. The benefits are clear, a more efficient irrigation system where maintenance of the drip lines has been eliminated and fertilizer delivery optimized. The plants from the treated section could be directly compared to a section without treatment, where all other parameters were kept the same as the section treated with HPGen.

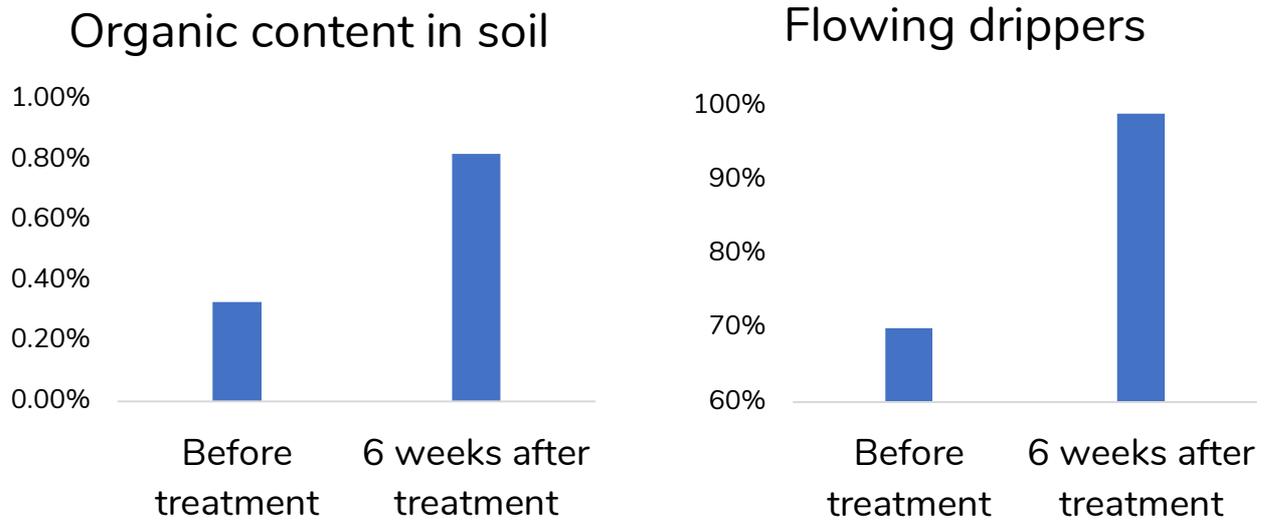


When comparing the two sections the agronomist stated:

"In the non-treated sector, the plants are smaller, and the sprouting is substantially smaller than in the sector treated with HPGen"

Jose Garcia Meca, Senior Agronomist at NDJ Iberica

The results for soil analysis and investigation of drippers can be seen below:



The drippers in the treated sector were assessed by the field operator who concluded:

“HPGen treatment resulted in all drippers being clean”

Jose María, *Field operator*

With those results, there is no need for manually checking and replacing drippers, and production is improved because plants are well irrigated and healthier.

