
HPGen improves growth and health of an organic blueberry crop in the Huelva region, Spain

- 💧 HPGen improves blueberry plant growth and health through better irrigation uniformity and organic matter availability.
- 💧 Higher water oxygen levels.
- 💧 Number of flowing drippers increased from 70 % to 95 %.
- 💧 Soil organic content more than doubled from 0.33 % to 0.8 % after 6 weeks of installation.



What is the HPGen solution?

HPGen improves and protects the crop through cost-effective and simple irrigation water treatment. The HPGen A series is designed specifically for the agriculture market and integrates seamlessly with standard irrigation systems. HPGen produces a safe concentration of Peroxide UltraPure™, a very high purity solution of hydrogen peroxide. Peroxide UltraPure™ is injected into irrigation lines, where it prevents biofilm growth, keeps the water system clean and the emitters flowing, and enriches the water with additional oxygen. This ensures an optimal irrigation uniformity, increased nutrient availability and higher yields.



Key benefits of HPGen

- 💧 On-site generation of Peroxide UltraPure™
- 💧 Chemical-input free - Only water, electricity and air as inputs
- 💧 > 99.99 % purity Hydrogen Peroxide, no additives
- 💧 Autonomous – fully automated operation
- 💧 Safe – safe concentration, no risk for operators or crop
- 💧 Cost effective – saves chemicals, storage, handling and labor
- 💧 Eco friendly – Peroxide UltraPure™ becomes water and oxygen after use

Site information

Located in the Huelva region in southern Spain, the blueberry plantation 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 sand and are irrigated with a modern drip irrigation system.



Together with the operators of the farm and leading agronomists, we analyzed the site and evaluated how to improve blueberry yields. Two main issues were identified:

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. Up to 30 % of the drippers were clearly clogged, despite extensive use of industrial oxidizers.
2. Poor dissolution of organic fertilizer in irrigation water, leading to low levels of organic matter in the soil which hampers plant growth. Analysis showed that organic matter content was of 0.33 %.

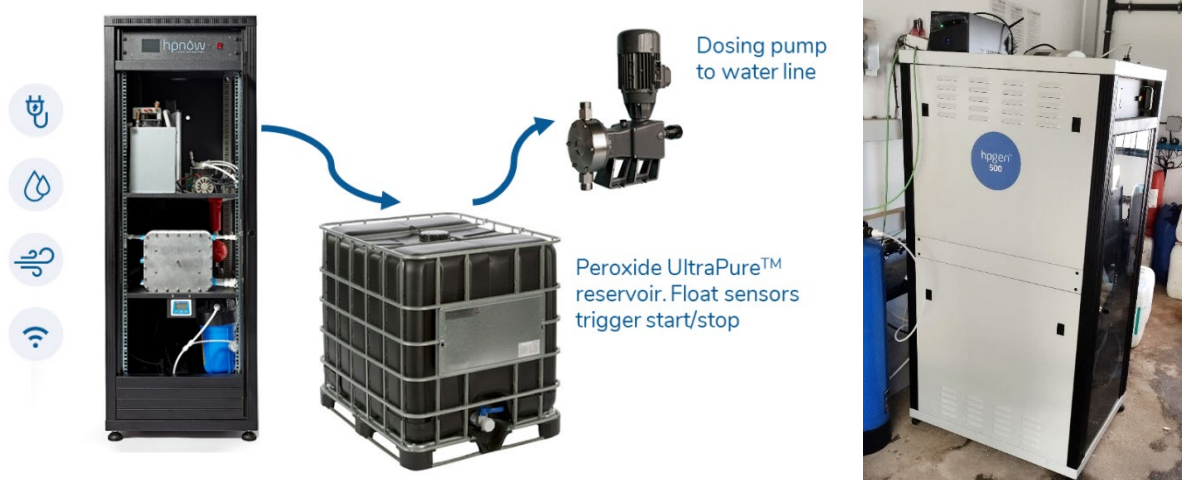


On top of this, costs related to these issues are high, with replacements of drip lines up to twice a year, as well as manpower used to identify and replace clogged drippers and ongoing chemical costs to attempt cleaning of the irrigation lines.

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

HPGen setup and dosing

An HPGen A500 was installed in the irrigation room and set to operate automatically. Output solution is temporarily stored in a buffer tank, from which it is dosed through a dosing pump into the irrigation lines.



Results of HPGen treatment

After just six weeks of running with the HPGen, field operators observed that all drippers in the treated section were flowing, differently from those in the non-treated section where 30% remained clogged. Soil quality was analyzed once more and found to be greatly improved. The results indicated organic matter levels increased from 0.33 to 0.80 %. Improvements in the crop were also clearly visible after 6 months of treatment, with more plant vigor and vegetative growth 6 months after starting dosing of Peroxide UltraPure™. The plants in 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.



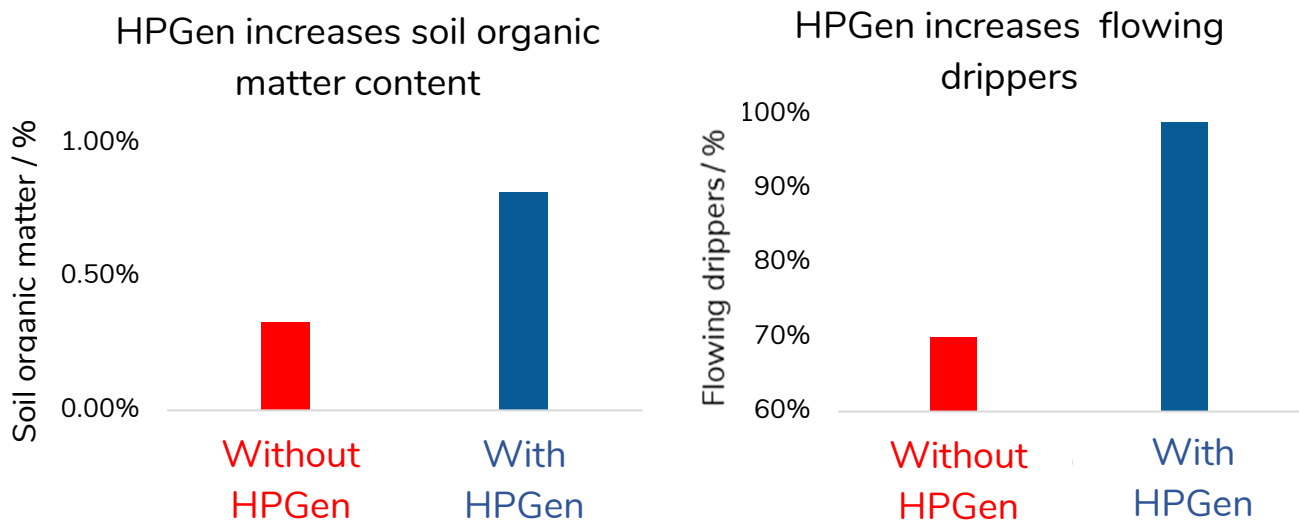
When comparing the two sections the lead agronomist stated:

“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, the crop is well irrigated and is healthier, which results in better growth and higher blueberry yields. The results are explained by the oxidizing power of Peroxide UltraPure™, which will oxidize organic matter in the irrigation lines and make it available to the crop. This ensures irrigation lines are clean and drippers flowing, getting water and fertilizer uniformly throughout the field while at the same time improving plant nutrition.

See a video of this case study in our Youtube channel:

<https://www.youtube.com/watch?v=mrkHdGHr0TY&feature=youtu.be>

Learn more about the HPGen system and its benefits for agriculture at:

<https://www.hpnw.eu/irrigation-water-treatment/>

