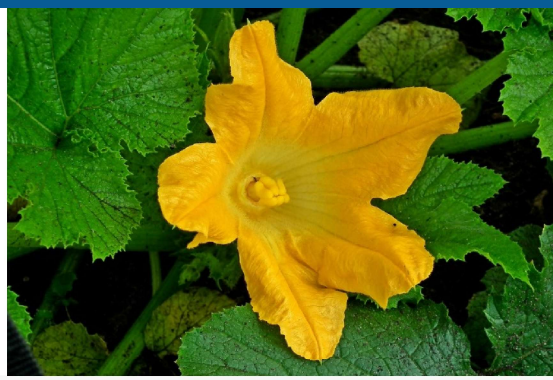
HPGen improves crop yields and reduces maintenance in cucumber greenhouse



Crop	Unit type	Irrigation system	Results
Cucumber, water melon	HPGen A1000	Drip	Increased yield by 40% Increased soil organic matter content from 0.3 to 4 % ROI < 1 year

The customer

Cucumber and water melon grower in Almeria, Spain

Located in the highly productive greenhouse area in Almeria, southern Spain, this grower has a plastic greenhouse growing cucumbers in winter and watermelons in summer. The soil in the region is dry, the climate warm and organic fertilizer is used. The plants are grown in the typical Almeria sandy soil (enarenado) and are irrigated with a modern drip irrigation system using pressure compensating non-leakage drippers. When assessing the site, it was clear that biofilm and organic matter precipitates block some of the drippers, resulting in non-uniform irrigation and insufficient water and fertilizer delivery to part of the crop. To mitigate this, farm personnel were going through the drippers frequently to “unclog”, a manual process highly costly in man-hours.

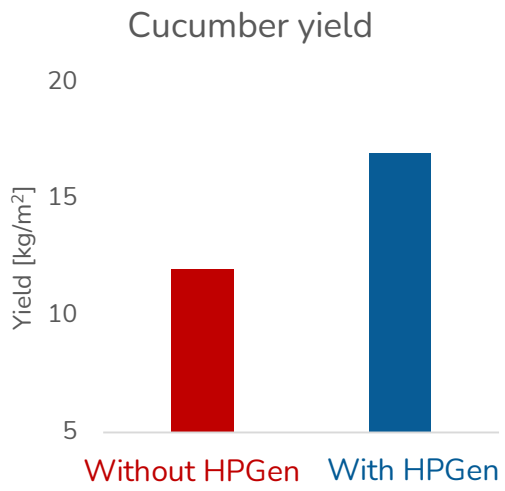
Soil quality was also analyzed and the amount of organic matter in the soil, a critical parameter for the healthy growth of the plants, was very low at 0.33%. This is due to

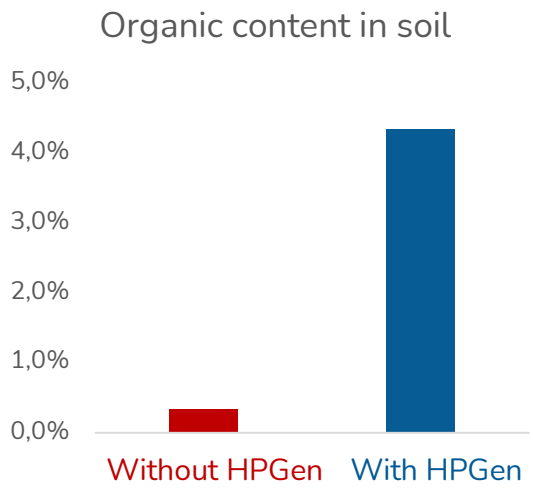
poor dissolution of organic matter fertilizers in water, which further exacerbates dripper clogging and decreases crop productivity. To overcome these issues, an HPGen A1000 model was installed and integrated with the irrigation system.

The problem and solution

Uniform irrigation, higher soil organic matter and higher yields through HPGen™

After a season of cucumber crop with HPGen, yields were compared to previous seasons. The results with HPGen were of 17 kg/m^2, a record for this grower, substantially higher than the average for the past 5 years of 12 kg/m^2. In addition, the grower observed the quality of the fruit was improved, and the fruit could remain for longer time in the plant, allowing for optimization in harvesting depending on market prices.





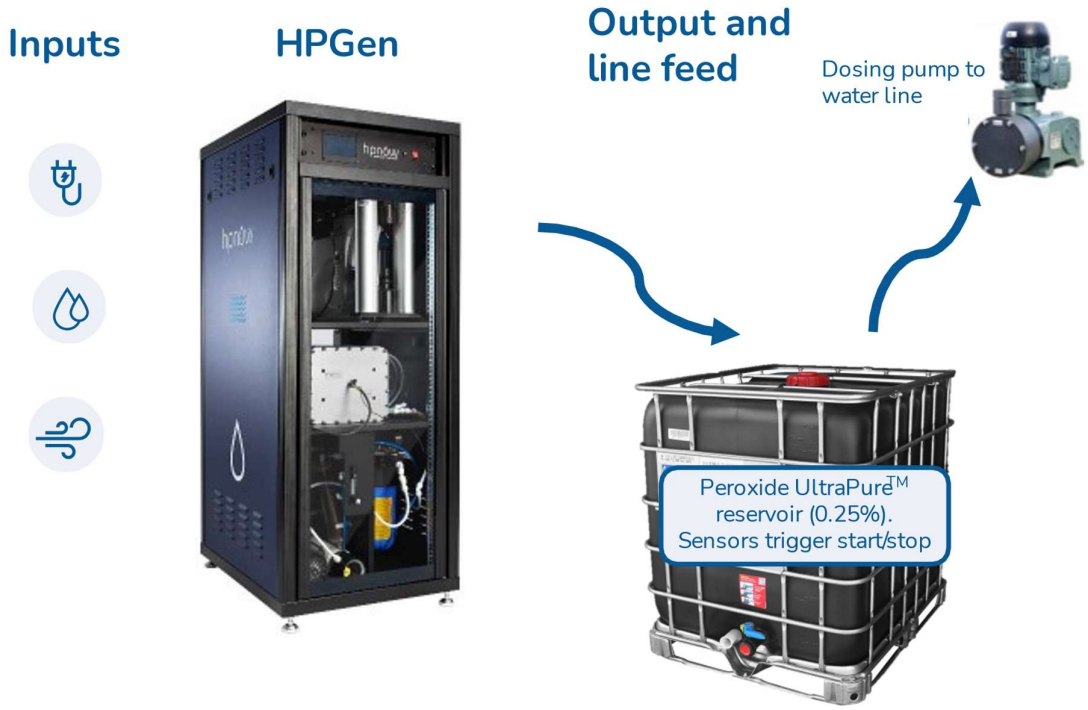
The improvement in >40% in production is explained by three factors:

1. Better irrigation uniformity. After two weeks of installing the HPGen all drippers showed a uniform water flow, which allows for an optimal distribution of water and fertilizer throughout the field.
2. Improved plant health
3. Increase of soil organic content, which increased by a factor of 10 (from 0.33 to 4 %), which contributed to improving plant nutrition.

Both factors are due to the high oxidizing power of the Peroxide UltraPure™ generated by the HPGen system, which oxidizes organic matter in the irrigation system and makes it available to the crop. This results in a better health and vigor of the plants, and in an improvement in yields.

HPGen setup

The HPGen was installed in the irrigation room and set to automatically fill a buffer tank with Peroxide UltraPure™. Dosing was done through a proportional dosing pump, which is both simple and effective. The system operates completely autonomously, without need for user intervention. Peroxide UltraPure™ is generated at a concentration of 0.25%, which is very safe and poses no danger to humans, plants or equipment, but is strong enough to effect the desired operational results.



Learn more about the HPGen™ system and its benefits for agriculture at: https://www.hpnow.eu/irrigation-water-treatment/

Please contact HPNow's Spain Agriculture Sales Manager, Pepe Meca (meca@hpnow.eu), for additional information.