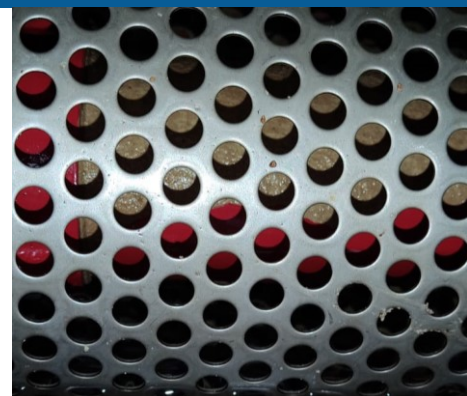


HPGen provides sustainable water treatment for irrigation community



Crop	Unit type	Irrigation system	Results
Irrigation community growing citrus and palm trees	HPGen A3000	Drip	<ul style="list-style-type: none"> Reduced maintenance and operation costs of the filtration system Removed zebra mussel and bacterial clogging Improved irrigation uniformity in the fields

The customer

Irrigation community in Easter Spain

Picassent irrigation community distributes and manages irrigation water for over 387 Has of crops to more than 900 users, mostly growing citrus and palm trees. Water is taken from the Tous dam through the Júcar-Turia canal, a large waterway which delivers water for irrigation and municipal use in the Valencia region of Spain.



Overview of the Júcar-Turia canal

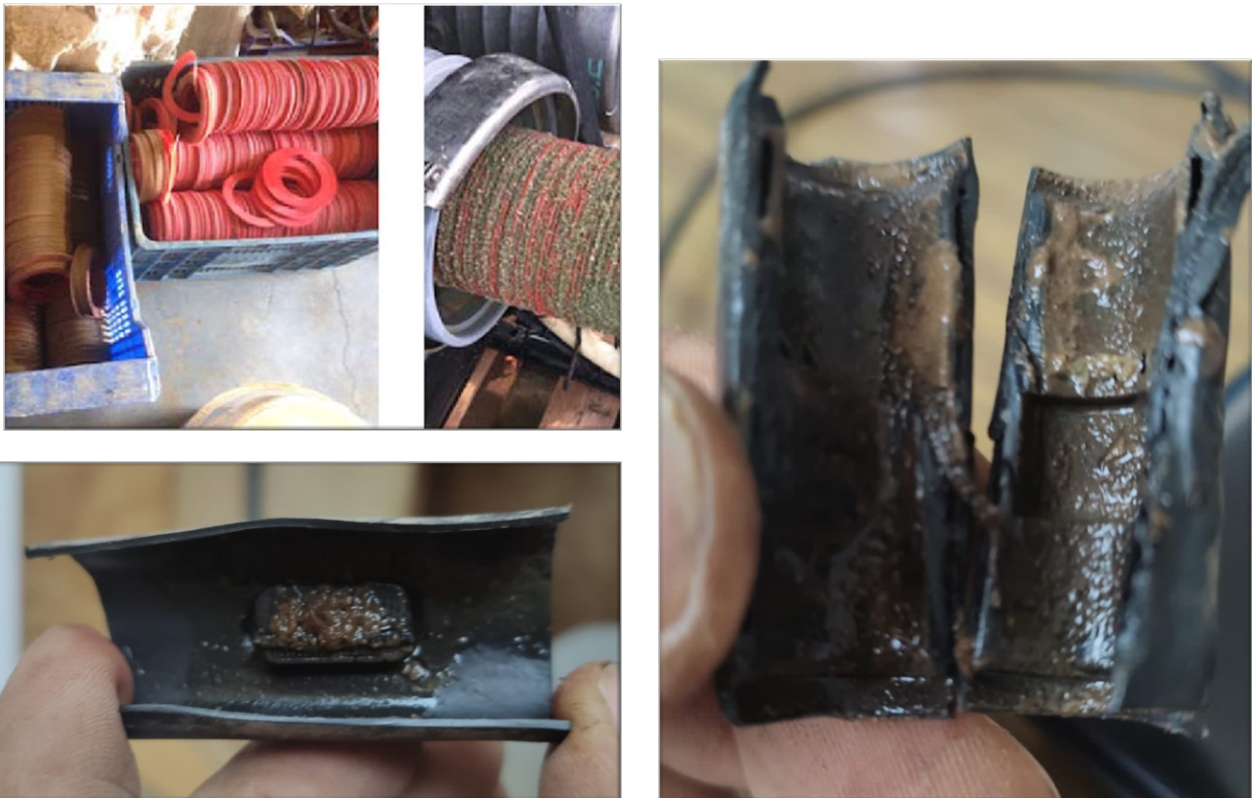


One of the eight irrigation Heads at the Picassent irrigation community

The problem and solution

Pythium protection and improved production with HPGen™

The Picassent irrigation community and its users suffer from severe water quality issues. While the water is very suitable for irrigation, it comes with a high organic load given it is a surface water. Abundant sunlight and low water flow in the dam create a very suitable environment for algae, zebra mussels and other organisms. This creates a continuous need for maintenance of water installations, including filtration stations, pumps, pipes and drip lines. This is a recurring cost for the irrigation community and its users, as much of the maintenance process requires manual involvement. It also causes frequent backwash of the filters, resulting in water losses, and additional energy spending in water pumping due to the higher resistance to water flow. Users of the irrigation community see a negative impact of the high organic content in terms of crop productivity, caused by non-uniform irrigation and high levels of pathogens in the water.



Example of heavy organic load accumulating at disk filters (top), and drippers (bottom and right).

HPGen™ systems generate a safe concentration of Peroxide UltraPure™, a very high purity solution of hydrogen peroxide. Peroxide UltraPure™ is injected into the irrigation system, where it oxidizes organics and prevents their further growth. This advanced

form of water treatment keeps the filters, pumps and other components clean for the irrigation community, and protects the crops and drip lines for its users.

At Picassent irrigation community an HPGen™ system was installed at one of the filtration stations, delivering up to 1200 m³ of water per day. The filtration station has two main filters, with two separate sets of piping and users. To properly compare the impact and benefits of the HPGen™ system, only one of the filters was dosed with Peroxide UltraPure™, while the other one was left without filtration. Dosing was done with a designated pump, which introduced peroxide before the filters in a continuous manner together with irrigation water. The filters were compared after 120 days of starting the injection, during which clear differences appeared between the section with dosing and that without.



Overview of HPGen™ installation at the irrigation head

Cleaner filters and drippers

Firstly, the filters at the treated section appeared much cleaner, without traces of organic matter. This includes algae, as well as zebra mussels, which were not present at the section that received Peroxide UltraPure™ dosing. This means that the need for maintenance on the filtration system is heavily reduced, and the effects of zebra mussel colonies growing in the water system are mitigated.

Automatic screen filter

With HPGen™



Without HPGen™



Strainer filter



Drippers

With HPGen™



Without HPGen™



Comparative images of section dosed with HPGen™ (left) vs non-dosed (right), representing filters and drippers. Organic matter precipitates and zebra mussel colonies are noticeably absent in the section dosed with Peroxide UltraPure™, while they are abundant in the non-dosed section.

Peroxide UltraPure™ not only had a positive effect on the filters. Growers belonging to the irrigation community also noticed a visible impact in their fields. Drippers and irrigation lines started flowing much more uniformly, which resulted in more vigorous, healthier crops.

Zebra mussels

Zebra mussels have been plaguing the irrigation community for a long time. The aquatic animal has been an invasive species in Europe for centuries, negatively impacting both ecosystems and agricultural communities. Combatting the zebra mussels has mostly been focused on controlling strategies, as they are difficult to eliminate entirely once established. The complete disappearance of zebra mussel colonies after application of the HPGen™ system is a hopeful sign not only for the Picassent irrigation community, but also for the broader struggle against this invasive species.



To measure is to know

With HPGen, maintenance personnel and growers can easily measure Peroxide UltraPure™ concentration using colorimetric test strips. That way, they can be sure their irrigation system is kept in top shape, and act swiftly if there is any anomaly. Test strips are simply immersed in water, and a color change indicates the concentration of Peroxide UltraPure™. In addition to this, the HPGen comes equipped with a sensor that measures the produced concentration, making sure the system delivers what is required.



Colorimetric test strip measurement of Peroxide UltraPure™ concentration at a dripper in the field.

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.

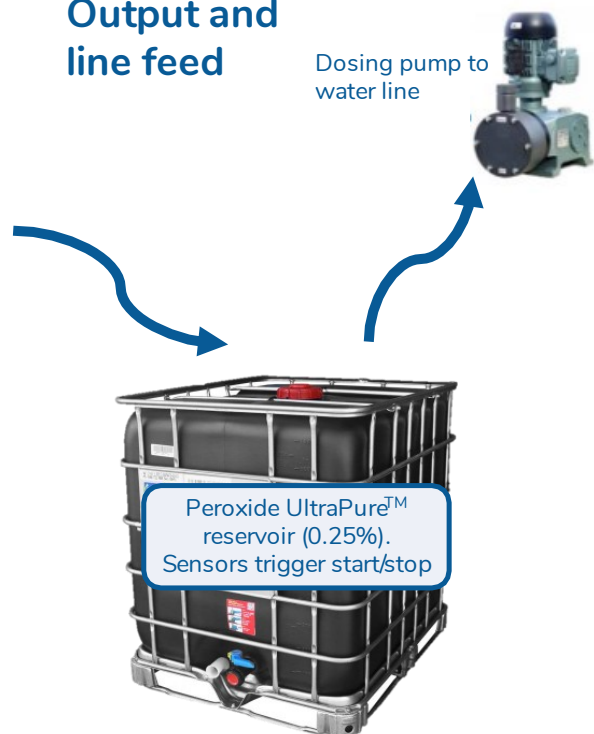
Inputs



HPGen



Output and line feed



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

Please contact HPNow's Iberia Sales Manager, Pepe Meca (meca@hpnnow.eu), for additional information.

