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## Improving crop health and reducing irrigation system maintenance for berry farm in Skælskør, Denmark

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## 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

Hunsballe Grønt is a modern greenhouse operation in Denmark, with about four hectares of covered area. They grow primarily strawberries and blueberries under glass and in tunnels. The operation uses an efficient, state of the art irrigation system with fertigation and a mixing tank capable of customized fertigation protocols. However, despite the modern irrigation setup, Hunsballe Grønt struggled with achieving their targeted irrigation uniformity. Non-uniform irrigation is a serious concern that severely hampers the health of the plants. With little or no water reaching the plant it will be weakened and stressed. A stressed plant is also prone to attacks from pests, fungi or diseases. Potentially it can lead to plants dying out during a season. It was also clear from the water in the tubes that a large degree of biofouling was present in the system, see photo to the right.

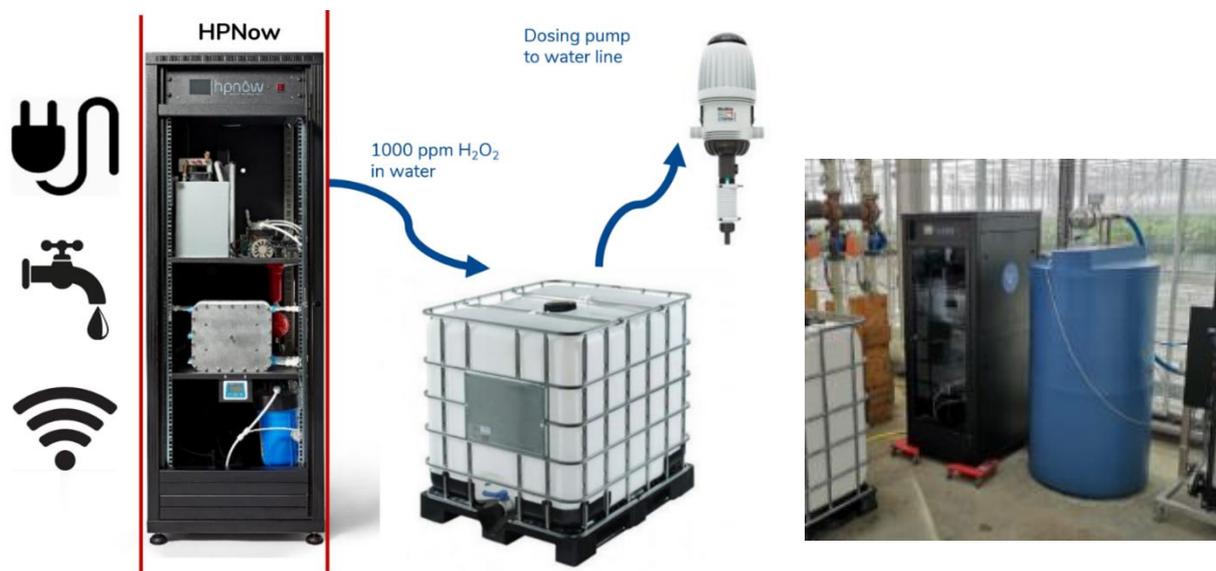
To overcome these issues, an HPGen A500 model was installed and integrated with the irrigation system.



## HPGen setup and dosing

The HPGen A500 was installed in the irrigation room and set to operate automatically with a buffer tank. Prior to installation, the drippers were analyzed, and a large proportion were clogged, meaning little to no water was coming through them. To overcome this, the drip system would normally have to be replaced between seasons.

Dosing: The HPGen was set to produce a 0.1% high-purity peroxide solution in a buffer tank from which the solution was dosed into the irrigation line. The in-line concentration was checked by measuring the peroxide concentration coming out of the drippers.



HPGen was installed to treat a section of the greenhouse so the grower could compare to a non-treated section.



## Results of HPGen treatment

After running with the HPGen for a season, the treated drippers exhibited virtually no clogging, whereas the untreated section had the same performance as before with clogging and non-uniform irrigation. The benefits are clear, a more efficient irrigation system where maintenance of the drip lines has been eliminated and delivery of fertilizer optimized. With these results, dripper lifetimes can be greatly extended, plants remain healthy throughout the season and stand a better chance fending off attacks from pests, diseases or fungi. From tubing to water exiting the drippers, the system could be maintained in a clean state.



1 Before treatment

2 After treatment

Testimonial from the grower:

*“We did a trial where we had HPGen installed for one section and could compare to a section which didn’t have the treatment. We could see a clear difference in how the drippers were kept clean with HPGen.”*

Claus Hunsballe, Owner, Hunsballe Grønt

See more on [www.hpnow.eu/agriculture](http://www.hpnow.eu/agriculture)

With the advantages of the system being clear, the HPGen system was integrated to treat all the sections in the greenhouse.

