

## CASE STUDY: PLANT GROWTH IMPROVED, ENERGY SAVED

**PROJECT:**  
Giusto Basilico

**LOCATION:**  
Cogoleto, Italy

**COMPLETION:**  
2018

**APPLICATION:**  
Surface heating

**PRODUCT:**  
aquatherm black system

### THE CHALLENGE

In a greenhouse for basil cultivation, an old heating system needed to be replaced by an efficient system that would provide consistent, uniform heat.

### THE SOLUTION

aquatherm black system ensures a constant water and ambient temperature and thus optimal conditions for basil cultivation. The growth of the plants was increased by about 25 percent.

## AQUATHERM BLACK SYSTEM IN HYDROPONIC SOIL ENSURES OPTIMAL BASIL CULTIVATION

**Due to its fresh aroma and distinctive taste, basil is one of the most popular spices in the world and is an indispensable part of Italian cuisine. The cultivation is quite straightforward, but for good growth the plant has one major need: uniform heat.**

This is also known to Stefano Giusto, owner of the family business Giusto Basilico. Since 1985, in Cogoleto, about 30 kilometres from the Italian city of Genoa, he has been growing the plant in his two greenhouses. In an attempt to keep the basil constantly at the right temperature, Giusto used a heating system with polyethylene pipes installed directly below the cultivated areas. Over time, this solution proved to be less than optimal for homogeneous basil cultivation and energy consumption in the greenhouses. That's why Giusto was looking for an efficient uniform heating system. During his research he came across piping systems from aquatherm.

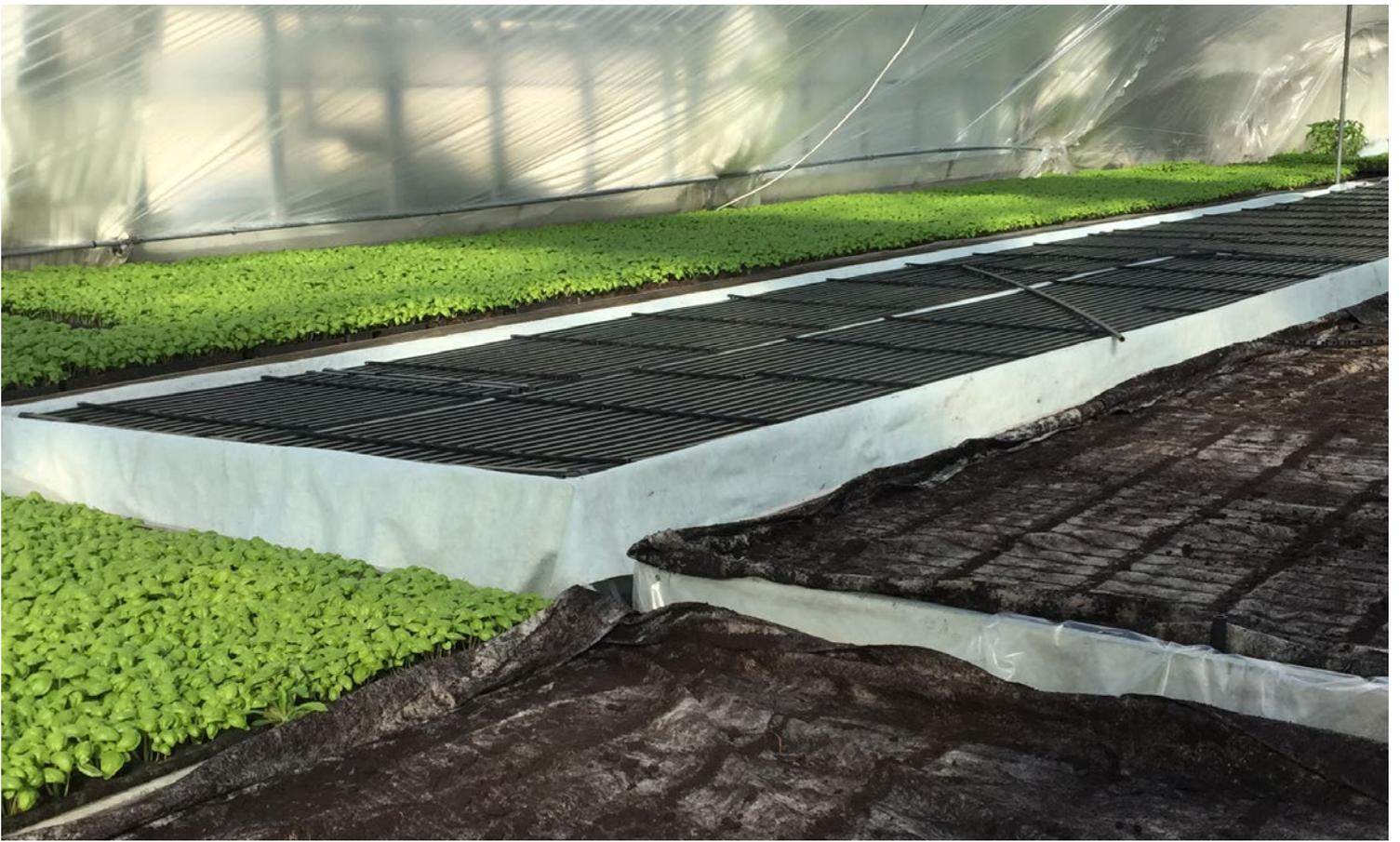
In intensive consultations, Giusto and the Italian aquatherm subsidiary developed an unusual solution for heating the greenhouses: The previous polyethylene pipes under the cultivation areas were replaced by the surface heating system aquatherm black system, which was used directly in a hydroponic soil. The black grids made of the corrosion-resistant material polypropylene are immersed in water that is four centimetres deep, and heat this evenly to 28 degrees Celsius. Without the need for another heating system, the warm hydroponic soil keeps the ambient temperature in the greenhouses constant at 18 degrees Celsius. This provides the basal plants with optimal growth conditions – even during the winter.

A total of 544 grids were installed in the two greenhouses on a cultivated area of around 1.500

square metres. These range from 48 x 80 cm up to 100 x 475 cm in length and were accurately and quickly inserted into the individual areas. This was made possible by the custom prefabrication production of the system at the aquatherm headquarters in Attendorn.

With a water supply temperature of 36 degrees Celsius and a return temperature of 31 degrees Celsius, the desired ambient and water temperatures are achieved, confirms Giusto. At the same time, the system provides a reduction in energy





consumption of about 10 percent compared to the previous system.

*“Due to the homogeneous water temperature in the cultivation soil and the correct ambient temperature provided even during the winter, basil growth has increased by about 20 to 25 percent compared to the previous heating system,” says Giusto. “The even heat distribution strengthens the root zone of the plant and improves product quality. The demand for my basil plants has thus increased significantly.”*



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