



**PHILIPS**

Horticulture  
LED Solutions

Case study  
Kwekerij  
Vreugdenberg

De Lier, the Netherlands



GreenPower LED production module

Fast production with  
**consistent quality**

LEDs with a specific light recipe provide a noticeable acceleration,  
uniformity in plants and better space utility in the greenhouse



“

The custom-assembled luminaires make for gains in space, **savings on energy and constant quality all year round.**”

**Aad Vreugdenhil**, owner, Kwekerij Vreugdenberg



### **Background**

Kwekerij Vreugdenberg, Aad Vreugdenhil's company, has innovation in its DNA. They are a large grower of kalanchoe in De Lier in Westland. They are always on the lookout for ways to improve production and quality. With no loss of reliability and if at all possible with greater control over the processes in the greenhouse. Vreugdenhil feels that the price tag on the investments in these processes must be in balance with the revenues. So having an idea about the payback potential of the investments is an important requirement.

### **The challenge**

Kwekerij Vreugdenberg's greenhouses are efficiently equipped and innovative installations. Standing still is going backwards, believes Vreugdenhil. So he is always broadening his horizons. This of course also includes the latest ideas in the field of the important production factor light. Substrate supplier BVB Substrates wanted to find out, in conjunction with Vreugdenhil, what combination of substrate, fertilizer and light makes for optimal control over

the development of the plants. Over the past year several tests have been conducted in the research greenhouse on BVB Substrates' premises. In collaboration with the substrate supplier and Vreugdenberg, Philips fitted out the test greenhouse, in which kalanchoes under LEDs were compared with plants under conventional lighting. The purpose of the tests was to find definite evidence of the added value of Philips Lighting's know-how and materials. The objective of the tests: consistent, fast production with consistent quality.

### **The solution**

In the new setup at Vreugdenberg the specially developed recipe for the rooting and vegetative growth of kalanchoes has, as expected, resulted in consistent production of young kalanchoes. The plants dealt more quickly and more efficiently with the light provided than those in the control group, which received 'normal' light. The study in the special test greenhouse on the substrate supplier's premises in De Lier resulted in the first light and substrate recipe for the young plant cultivation of kalanchoes in multiple layers.

This recipe is now suitable for practical application. Philips has now developed a special luminaire for kalanchoe cultivation, which will be used this lighting season for the multi-layer cultivation at Vreugdenberg. Vreugdenhil is enthusiastic: 'Following a joint test period with BVB Substrates and Philips in the test greenhouse, we have developed a recipe based on which I can grow my kalanchoes in any season in a cultivation process without daylight using LEDs. Fast and high-quality. Philips has incorporated the lighting requirements for this kalanchoe recipe into a special GreenPower production module. I now use this on my own farm under my current cultivation layer. There I can optimize the recipe even more according to my specific climate conditions.'

#### Benefits

The plants benefited most from the light recipe of the specially developed modules during the winter. But in summer too, the quality of the kalanchoes under the LEDs

was better than that of the plants in the control group. The grower is reaping the fruits of the partnership between BVB and Philips, which combined their strengths during the tests. As a result, Vreugdenberg acquired not only a good product but also the know-how and expertise of the specialists from both companies. And Vreugdenhil's kalanchoes are benefiting from this. Following the successful tests, Vreugdenhil is now looking to the future. 'I want to see whether young plant cultivation in multiple layers using LEDs can be successful. If I can achieve my current quality in multi-layer cultivation, that would be a sensational improvement. I am currently using 7300 m<sup>2</sup> for young plant cultivation and that could then be reduced by half. On my farm that would represent 16% greater space utilization. And therefore higher sales and lower energy consumption. I'm very encouraged by the fact that Philips and BVB Substrates are continuing the partnership with more tests in that area. For me that's a sign that they have the vision to invest in innovations that strengthen our industry.'

“  
**Proven added value of LEDs  
with specific light recipe  
makes for gains on all fronts.**”



## Facts

#### Grower

Kwekerij Vreugdenberg

#### Sector

Potted, bedding plants and perennials

#### Crop

Kalanchoe

#### Location

De Lier, Zuid-Holland, the Netherlands

#### Solution

Philips GreenPower LED production module

#### Philips Partner

BVB Substrates

#### Results

LEDs with a specific light recipe provide a noticeable acceleration, uniformity in plants and better space utility in the greenhouse



© 2015 Royal Philips N.V. All rights reserved. Philips reserves the right to make changes in specifications and/or to discontinue any product at any time without notice or obligation and will not be liable for any consequences resulting from the use of this publication.

Document order number: 3222 635 66721  
01/2015  
Data subject to change

For more information about  
Philips horticulture LED Solutions visit:  
[www.philips.com/horti](http://www.philips.com/horti)

Write us an e-mail:  
[horti.info@philips.com](mailto:horti.info@philips.com)

Or tweet us:  
[@PhilipsHorti](https://twitter.com/PhilipsHorti)