



PHILIPS

Horticulture
LED Solutions

Case study
Kieft-Pro-Seeds/
PanAmerican Seed

Venhuizen, the Netherlands



Philips GreenPower LED production module and LED string

Energy-savings
up to 30%

“Better germination rate and more control with less water,
labour and space.”



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Philips is miles ahead in terms of **horticultural LED lighting.**”

Willem Koopman, Manager of Seed Operations,
Kieft-Pro-Seeds/PanAmerican Seed



Background

Kieft-Pro-Seeds/PanAmerican Seed is one of the world's leading breeders and producers of F1 and open pollinated flower seed, offering a full line-up of unique, high-quality seed perennials. Professional growers have come to count on their innovative yet solid genetics, reliable quality, personalized service and easy 'one-stop shopping'. Philips and Kieft-Pro-Seeds/ PanAmerican Seed have been collaborating for a number of years, exchanging ideas and research findings, e.g. from LED trials conducted in Kieft's germination testing chamber.

The challenge

'For many years we have been trying to find a solution to reduce the heat load in our germination chambers due to the use of heat with fluorescent lamps, HFLs,' says Willem Koopman, Manager of Seed Operations at Kieft-Pro-Seeds/ PanAmerican Seed in Venhuizen, the Netherlands. The surplus of heat produced by HFLs required a lot of cooling as seedlings have small root systems and can dry out very quickly. Kieft-Pro-Seeds/PanAmerican Seed was also keen to achieve

uniformity of light level in order to ensure uniformity in the crops grown. Other priorities included exploring the use of LEDs to optimize the germination rate and to control (the timing of) the growth process.

The solution

The trialed solution consisted of eight trolleys with five layers installed by LIA. Each trolley featured GreenPower production modules deep red/blue(4 per layer) and GreenPower LED string white.

'Finding the right light recipe was not easy,' recalls Willem. 'We've tested different recipes ranging from 50 to 200 μmol , ending up with modules consisting of blue and deep red lights with an efficiency of 50 $\mu\text{mol/s/m}^2$. We found out that a higher intensity of red light provokes leaf burning. Furthermore, the LED lights are designed to ensure that all the emitted light is focused on the crop, significantly minimizing light pollution. I believe the recipe is now more or less perfect, so it's with great pride that I can announce a full switch to the latest energy-efficient Philips GreenPower LED modules within the next two years.'



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With LED we can optimize the germination rate, control the growth process, and at the same time create savings on energy, water and labour costs.”

Benefits

The LED trial proved a resounding success, ensuring much greater uniformity of lighting for all crops, including some which are part of Kieft-Pro-Seeds/PanAmerican Seed' top five sellers. Certain crops (like Gerbera) are exhibiting faster growth and better germination. And all of this at a fraction of their previous water consumption and labor requirement for watering. The LED lighting installation will save up to 30% of the energy consumed by the previous lighting in the germination testing chambers. The total energy saving is expected to be around 14,000 kWh per year. Seed germination expert Willem Koopman strongly believes that the LEDs will offer plenty of other benefits too, e.g. in multi-layer production and seed treatments. In multi-layer production, LEDs can maximize available space. 'Currently, HFLs are fixed onto trolleys, of which only two can be placed in the germination chambers. More trolleys would simply generate too much heat. By using LEDs, you can easily put four trolleys in the chambers and build taller racks, as the LEDs can be brought much closer to the seedlings,' explains Willem. 'And the great news is that there is still scope to add one more layer to the trolley, increasing production by a further 33%.'

'Philips has hired two application specialists in horticultural lighting who have provided in-depth knowledge and highly valuable advice,' concludes Willem Koopman. These plant physiologists know all the ins and outs of the physical, chemical, and biological functions of living plants, and this is something Philips deserves credit for. We've been in contact with other suppliers and have come to the conclusion that Philips is miles ahead in terms of horticultural LED lighting.'



Facts

Grower

Kieft-Pro-Seeds/PanAmerican Seed

Sector

Seeds, young plants and cuttings

Crop

Various crops, F1 and open polinated flower seeds

Location

Venhuizen, Noord-Holland, the Netherlands

Solution

Philips GreenPower LED production module and LED string

Philips LED Horti Partner

Lights Interaction B.V.

Results

Better germination rate, greater uniformity, less water, less labour, less space and energy saving up to 30%



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