

PHILIPS

Horticulture
LED Solutions

Case study
Wimceco
Rose Nursery
Boechout, Belgium



Philips GreenPower LED toplighting

Balanced climate makes for excellent-quality roses

More light without the extra heat



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Since the LEDs give off less heat, we can provide lighting for longer in the spring and autumn if the outside temperature is are higher. **This improves the quality of the roses.**”

Danny and Bart van Nuffelen, owners of Wimceco Rose Nursery



Background

Wimceco Rose Nursery is a modern nursery specializing in growing large-flowered cut roses. Danny and Bart van Nuffelen are in charge of the day-to-day management of the company, after taking over the family business from their parents Willy and Cecilia in 1999. The product range comprises a broad spectrum of colors; including not only popular varieties such as ‘Avalanche’ and ‘Red Naomi’ and the exclusive variety ‘Sweet Avalanche’, but also ‘Deep Water’, ‘El Torro’, ‘Renate’ and ‘Talea’. The flowers reach the customers via the Euroveiling Flower Trade Center in Brussels and Royal FloraHolland in the Netherlands. The brothers also sell fresh bouquets to consumers straight from the nursery. This nursery covers an area of 17,500 m², of which 12,000 m² was created in 1988 and 5,500 m² in 1999. The greenhouse has a span width of 12.80 meters, with a section size of 4 meters and a leg height of 4 meters.

The challenge

“We’ve been using artificial lighting since 1988,” Danny van Nuffelen tells us. Until recently the total capacity was 130 $\mu\text{mol}/\text{m}^2/\text{s}$, consisting of 600 W / 230 V and 600 W / 400 V lamps, switchable in two stages. The department that was built in 1999 had an installation consisting of 150 $\mu\text{mol}/\text{m}^2/\text{s}$, with 750 W / 400 V lamps. Danny and Bart wanted to replace the outdated lighting installations in both departments. “We wanted to raise the light level without increasing energy input,” explains Danny. “Two thirds of the energy for the lamps is obtained from our own CHP. Buying additional electricity is very expensive here in Belgium.”

The solution

The brothers had kept track of the developments in LED technology. But before making a decision about buying a new installation they talked to Philips' plant specialist and Horti LED Partner Agrolux. During these talks both the energy balance and the economic calculation of the old installation were examined. Eventually a brainstorming session regarding various lighting scenarios produced two options. It gradually became evident that good heat management is at least as important and can bring about as many benefits as the addition of extra light. A new calculation model provided insight into where these two paths meet. Van Nuffelen told us: "We were, for example, able to make an informed decision regarding the ratio of LEDs to HPS lamps. It also became clear what the savings in terms of heat and CO₂ would be if LEDs were used. Since the LEDs give off less heat, we can provide lighting for longer in the spring and autumn if the outside temperature is higher." The solution that was opted for in the end, was a 180 µmol/m²/s installation consisting of 90 µmol/m²/s Philips GreenPower LED toplighting and 90 µmol/m²/s HPS lamps (1,000 watts). This represents a 40% increase in capacity compared to the old situation for the same energy input.

Benefits

When Wimceco installed the lighting in the autumn of 2015, it became the first rose nursery in Europe to use hybrid lighting in rose cultivation. "We've noticed that the crop grows better and is of higher quality," Danny tells us. "The main reason for this is the increase in the light level." The brothers have also noticed that thanks to the LEDs they are able to keep the temperature in the greenhouse under control. "The hybrid installation allows us to control the climate much better than previously. In situations with a low winter sun, where the greenhouse warms up but does not receive enough radiation, we can still add extra LED light. This prevents the greenhouse from becoming unnecessarily hot. In the spring and autumn this will give us an advantage," according to Danny. When it gets really cold in the winter, the entire installation will of course have to be turned on. Even then, the brothers can keep the energy input under control.



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Facts

Horticulturalist / grower

Danny and Bart van Nuffelen

Sector

Ornamental plant cultivation

Crop

Rose

Location

Boechout, Belgium

Solution

Philips GreenPower LED toplighting

Philips LED Horti Partner

Agrolux

Benefits

Better control of climate due to lower heat radiation as compared with solely HPS, better-quality roses and a higher light level for the same energy input.



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