

# Lighting



Commenting on the installation of LED lighting Frands Jepsen says, "It was clear to us that LED had potential."

**The Danish nursery Knud Jepsen A/S – Queen® Kalanchoe has expanded its production area without building any new glasshouses thanks to LED modules installed in transport lanes**

by Lotte Bjarke

## LED's go on

Queen® is a leading producer and breeder of Kalanchoe based in Hinnerup, Denmark. The production facilities at the nursery of 120.000 m<sup>2</sup> are highly automated and a high efficiency rate is an important factor for the success of the company.

In the constant search for new ways to optimise the production process, Queen® initiated a project in cooperation with Philips three years ago aimed at testing the potential of LED lighting for the production of Kalanchoe.

### Implemented in production

Kai Lønne, R&D manager at Queen®, conducted small scale testing in the laboratory facilities at the nursery and found not only that different types of LED lighting had significant impact on Kalanchoe,



## Knud Jepsen A/S – Queen® Kalanchoe

Queen® is a leading Danish nursery founded in 1939 and is now run by third generation of the Jepsen family, Frands Jepsen.

The nursery specialises in Kalanchoe and is world famous for the breeding results in this field. Many award winning new varieties are the well known achievements of the

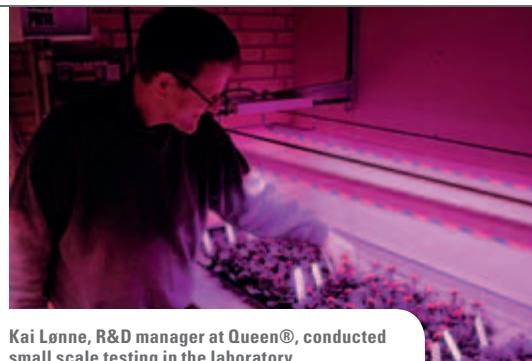
innovation centre at the nursery. In Denmark about 23 million Kalanchoe are produced each year and the company has established production of cuttings for the world market at facilities in Vietnam, Costa Rica and Turkey.

For further information: [www.queen.dk](http://www.queen.dk)





The next step was to install Philips GreenPower LED modules in the transport lanes which are situated under the greenhouse bench.



Kai Lønne, R&D manager at Queen®, conducted small scale testing in the laboratory.



Small scale testing.

he also discovered a method to produce the plants using only LED as source of light.

“It was clear to us that LED had potential and it was obvious that it had to be tested on a larger scale”, says Frands Jepsen, managing director at Queen®.

The next step was to install Philips GreenPower LED modules in the transport lanes connecting the various parts of the nursery. The lanes are placed beneath the production tables and so far it has been a dark experience for the plants as they were moved from one section of the nursery to the next.

### From problem to advantage

The transport lanes used to be problematic growth-wise because of the dark conditions. Due to the low height under the tables so far it has not been possible to install proper lighting to eliminate the problem. “But thanks to LED this is now possible and we have actually turned a problem phase of production into an advantage. Not only can we use the LED light to control the growth while plants are being moved around, we have also achieved more flexibility in produc-

tion since the plants no longer have to be moved as quickly as possible out of the transport lanes”, explains Frands Jepsen.

So far, by using LED modules, Queen has been able to expand the production area by 1.200 m<sup>2</sup>, but results are so good, that another 1.800 m<sup>2</sup> of lighted transport lanes will be added during the next months.

The LED modules have simply been mounted on the existing construction for the mobile tables and the only challenge has been to make them switch on when the plants were actually there. A challenge now solved through programming of the nursery computer.

### Testing goes on

At Queen® the experiments with LED continues in order to optimise the future use of LEDs.

“We chose for red-blue light for the transport lanes because at this stage of production the stretching of the plants can be a problem. But if we were to use LED light for the total production, we might have to choose other colour combinations. An advantage of LED is that it is actually possible to adapt the colour combinations of the light to the

requirements of the plants. The results I have seen convinces me that it is possible to grow plants with LED as sole source of light and I am beginning to think that I might have built my last greenhouse. The future will provide other means of expansion, and as the LED light becomes cheaper and energy becomes more expensive, this day draws closer”, concludes Frands Jepsen who sees production in layers as part of the future. III

## Focus on innovation

“Without research and development, we would not be here today.” The words come from Frands Jepsen who strongly focus on a sustainable horticultural industry. A focus which has not gone by unnoticed within the sector and by Danish and European authorities. The LED project is supported financially by the Danish Ministry of Food, Agriculture and Fisheries as well as by EU. The same applies for another interesting project regarding the possibility of saving energy using new, electronic fittings for growth lamps.

