
PHILIPS
Horticulture
LED Solutions
Case study
Deliscious
Beesd, the Netherlands
LED
Philips GreenPower LED production module
Deliscious
We wanted to create
a fully controllable
environment
“Efficient use of space, less water usage, increased and consistent plant quality.”

“We have increased the quality of the plants **due to a conditioned cultivation process.**”

Roy and Mark Delissen

Background

Almost everything about Roy and Mark Delissen’s company is special: they are the first Dutch lettuce growers with a mobile ‘gutter’ system in which the plants float on water, and they are the first grower to transfer a part of their cultivation to a completely closed space. And Roy and Mark themselves are special too: they are twins and they complement each other in every respect. Mark Delissen spent ten years working in the logistics sector and now combines his expertise with his brother Roy’s knowledge of plant cultivation. This consistently gives rise to exciting decisions. That’s why Deliscious is leading the way on many levels.

The challenge

At Deliscious they use a dynamic model to ensure the greenhouse is always full. It is comparable with the system used by supermarkets: one out, one in. This frequently led to problems in the winter because an order for extra plants takes longer. At that time of year the day length is the limiting factor for growth. Innovative as always, the Delissen brothers decided it would be useful to propagate the lettuce plants themselves using LED lighting. ‘It’s not that we weren’t happy with our supplier of young plants,’ says Mark Delissen. ‘We just wanted to be able to control the entire process ourselves because controllability is important to us. We wanted to create a fully controllable environment, i.e. a climate-controlled cell. That would shorten considerably the time needed to propagate plants in the winter.’ After a number of tests the brothers ended up at Philips. The two companies joined forces to develop a new cultivation concept for lettuce in a completely closed climate-controlled cell.

The solution

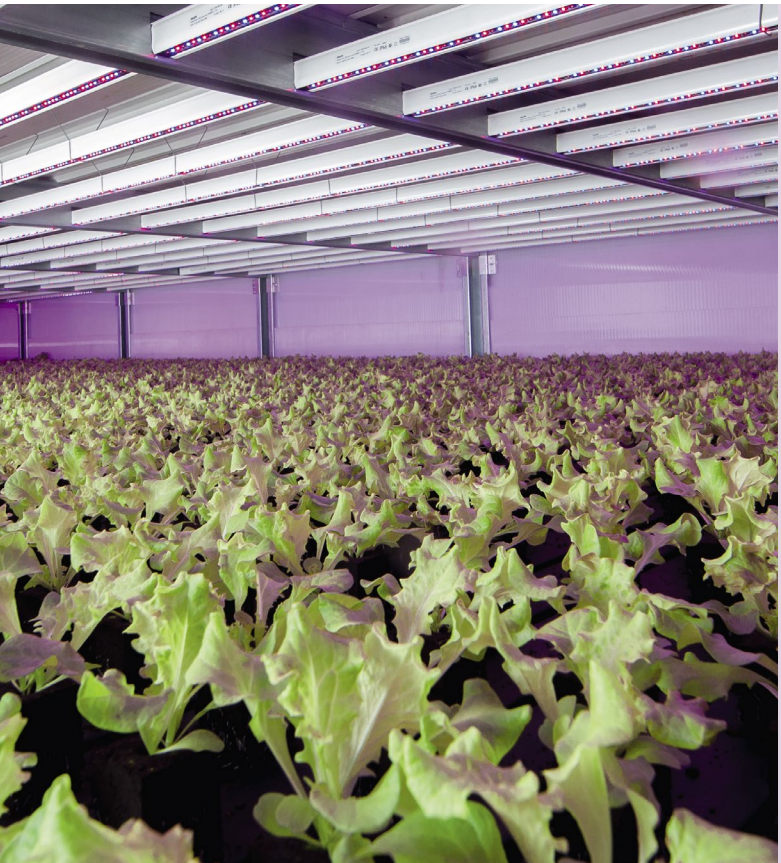
After just over a year of testing in single-layer cultivation using different lighting levels and spectra they found the right light recipe for the propagation of living lettuce without daylight. This not only reduces considerably the length of the propagation phase, it also ensures a more consistent quality of lettuce over the different seasons. Internal logistics and climate control will be developed further in

the new multilayer climate-controlled cells that are to be built. The lettuce plants are now produced – in seven layers, one on top of the other – from lettuce seed to living lettuce in a special climate-controlled room twenty meters wide, forty meters long and eight meters high. It is in effect one enormous breeding area. The Philips GreenPower LED production modules, which measure one and a half meters in length and have a plastic housing, illuminate the baby plants with the right light recipe to ensure uniform growth.

Benefits

By using this new lighting formula Deliscious is able to control the entire production process, from lettuce seed to full grown lettuce, and to minimize any adverse external effects on quality and origin. This makes it possible to produce more efficiently and enables the company to deliver lettuce of a consistent quality all year round in a reliable way. The optimization of the cultivation process means a better return for the growers and a consistent quality of the final product. Mark Delissen is very happy with this. 'During the test phase we found that the plants from the cell are of a much higher quality. This is because they are accustomed to consistent, optimum conditions, whereas at the plant supplier's they have to cope with variations in temperature, air humidity and other uncontrollable factors. We expect the stronger plants will also enable us to save on plant protection, but that will be an added bonus.'

> "**The lettuce plants in the closed climate-controlled cell** are clearly of a higher quality."



Facts

Grower
Deliscious

Sector
Vegetables

Crop
Leafy vegetables and herbs

Location
Beesel, Limburg, the Netherlands

Solution
Philips GreenPower LED production module

Philips LED Horti Partners
Certhon and Lights Interaction b.v.

Results
Efficient use of space due to multilayer cultivation, less water usage, increased and consistent plant quality

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