Case study
Uman Greenhouse Complex

Location	Ukraine
Philips Lighting	Philips GreenPower LED interlighting and Philips GreenVision 1000 W (HID)

PHILIPS
sense and simplicity

"We are proud to be the first grower to work with Philips LED interlighting and have been using Philips GreenVision 1000 W systems since 2008"

Background

Uman Greenhouse Company (UGC) in Ukraine is a highly innovative company that has been engaged in the production of tomatoes and cucumbers since 1974. It was the first horticultural company in Central Eastern Europe to start using 1000 W HID. In recent years UGC has recorded tremendous growth, and today its hyper-modern greenhouses covers an area of over 30 hectares.

UGC has been conducting tests with hybrid lighting for some time now. In the period 2010-2011 trials were carried out with interlighting in addition to the existing lighting, which confirmed that heavier tomatoes could be obtained through interlighting. In 2011 the test was extended to include new LED interlighting modules, whereby the SON-T light level was slightly reduced – from 280 µmol/m^2/s to around 200 – but supplemented with LEDs for a better balance and to make more efficient use of the overall light system.

During this period of testing, specialists from Philips, including a plant physiologist, were heavily involved, sharing their knowledge and experience in order to arrive at the optimum light recipe for UGC. The close cooperation between Philips and UGC quickly delivered positive results.

The challenge

UGC wants its plants to make more efficient use of each micromole of light in order to increase the weight of the fruit and so drive higher production levels. At the same time the company is very keen to reduce its lighting-related energy consumption.

The solution

In view of the positive results obtained with hybrid lighting at GreenQ's Improvement Centre in the Netherlands, and also in Scandinavia, UGC decided to combine the strengths of GreenPower SON-T and GreenPower LED in order to further increase production. In November 2011 UGC decided to upscale the project and to equip an area of 0.625 hectare with a hybrid lighting system with LED interlighting.

More efficient use of each micromole of light in order to increase production levels with reduced energy consumption

Facts

Grower
Uman Greenhouse Complex (UGC)
Sector
Vegetable production greenhouse
Crop
Tomatoes
Location
Ukraine
Solution
Philips GreenPower LED interlighting module and Philips GreenVision 1000 W (HID)
Philips LED Horti Partner
Electrosvit
Results
Increase production levels with reduced energy consumption

Benefits

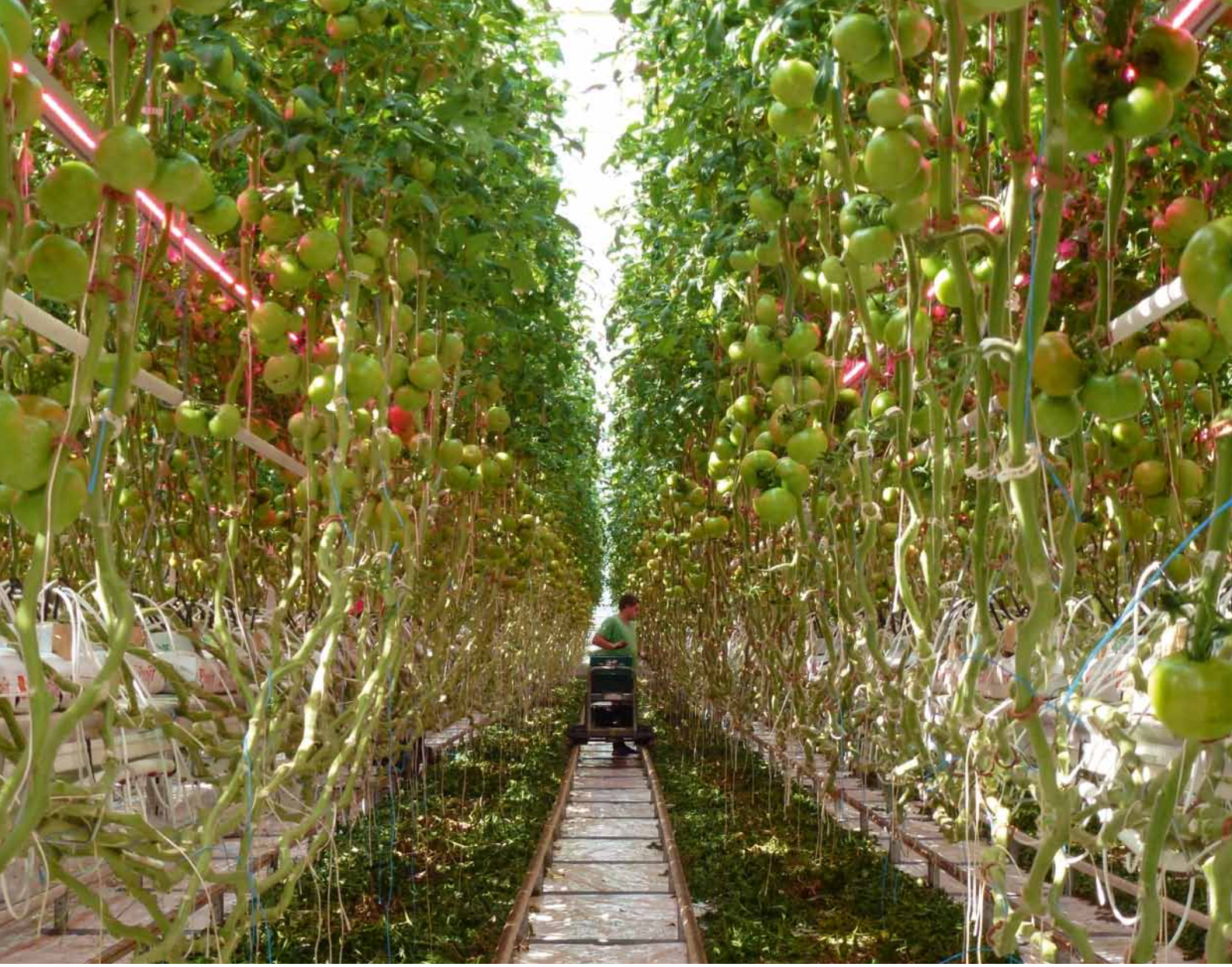
Lighting the lowest leaves has a positive effect on coarseness and production. Because of LEDs' low heat emission, the light modules can be positioned in among the crop – exactly where the plant needs it. By distributing light into the crop more intelligently, light saturation or lower light utilization efficiency will occur less quickly. Light is often the limiting factor at the bottom of the crop. Interlighting with LEDs helps to supplement the light requirement deeper in the crop and in this way brings the entire crop to higher production.

Initial indications are that partial replacement of HID by LED produces the best results. The lighting currently used emits 200 µmol/m²/s (15,000 lux) from HID and 44 µmol/m²/s from a single line of LEDs, resulting in a total light level of 244 µmol/m²/s. The rows are spaced at a distance of 2 meters. In this case the energy saving is 8%, mainly thanks to the higher energy efficiency of the LEDs. With this set-up the yield appears to be maximized for the lowest energy cost.

'We are proud to be the first grower to work with Philips LED interlighting. We have been using Philips GreenVision 1000 W systems since 2008' says Nikolay Gordiy, General Director of UGC. 'This modern HID installation immediately gave us a 25% increase in production. With the new LED interlighting solution we expect to increase production by a further 15%. Thanks to these excellent figures our payback period is around 2.5 years. Compared with the traditional method of lighting, the Philips LED solutions are very energy-efficient. In the long run this will also have a positive effect on our production costs. We are, of course, extremely happy with this.'

"UGC decided to equip an area of 0.625 hectare with a hybrid lighting system with LED interlighting"

With state-of-the-art LED interlighting, UGC has underscored its reputation as a trend-setting tomato grower in Central & Eastern Europe – and laid the basis for an even more successful future.



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