A man wearing a plaid shirt and a cap is working in a greenhouse. He is surrounded by rows of cucumbers growing on trellises. The greenhouse has a high ceiling with a complex structure of pipes and lights. The lighting is bright, and the plants are lush green.

**PHILIPS**

Horticulture  
LED Solutions

Case study  
Glenwood Valley  
Farms

Langley, British Columbia, Canada



Philips GreenPower LED interlighting

Increased production  
by means **of more  
efficient light absorption**

“Particularly in the winter months this provides the plant with better growing conditions.”



“

We're very happy with the LED trial results, they were above expectation. **I'm thinking about going for the full LED lighting system in the future.**”

**Herb Schlacht**, Owner, **Vicki Surrage**, R&D Manager



### **Background**

Glenwood Valley Farms are established greenhouse growers of hand-picked, locally grown vegetables. The company has 14.5 acres of greenhouse in Langley, Canada, growing Long English cucumbers, mini-cucumbers, eggplants, and a variety of peppers.

### **The challenge**

Glenwood Valley Farms were keen to boost productivity by increasing the yield of mini-cucumbers. Herb Schlacht, the owner, had heard about the potential positive effect of LEDs, and after a visit from Philips decided to conduct a test. It comprised four rows of 16 GreenPower interlighting modules, used together with the already existing HPS (High Pressure Sodium, also known as HID) lighting system. With Philips GreenPower LED interlighting modules it is possible to provide light between the plants so that the plants can be lit where they most benefit. Various trials in tomato and cucumber have demonstrated that this enables much higher and more efficient plant production as the light provided

can be converted more efficiently into sugars, the building blocks of the plant.

### **The solution**

Two production rounds were run using the Philips GreenPower LED interlighting modules in addition to the incident daylight and supplemental HPS lighting. A control group utilized daylight and HPS lighting only. Support was provided by a Philips plant physiologist.

Adding the LED interlighting with an optimized spectrum for a particular crop keeps leaves active. And since this new lighting solution is highly focused, no light is lost to the ground. LED-based lighting is also extremely energy-efficient, but the small amount of heat produced by the modules further saves on heating costs.

### **Benefits**

The average increase in production of the LED treatment was 19% (kg/m<sup>2</sup>), while adding only 8% extra light. This indicates that highly efficient use is made of the LED light.

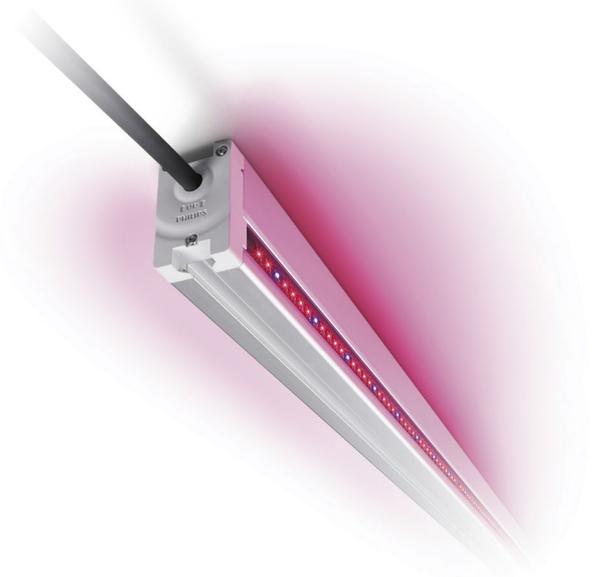
The extra production could be seen in faster maturation of the fruits and slightly larger fruits. Also, the positioning and size of the leaves were different: the leaves in the LED trial group were darker and smaller, and they were also positioned less horizontally, and facing more towards the LEDs. At the end of the crop cycle it could be seen that much energy was given by the crop. The grower thinks that more can be realized when irrigation and climate can be optimally controlled for this crop.

Tests with hybrid systems such as the Glenwood Valley system have shown an increased production by means of more efficient light absorption. Particularly in the winter months this provides the plant with better growing conditions. But also in the summer there are opportunities of keeping a crop under control.



“

**The average increase in production was 19% (kg/m<sup>2</sup>), while adding only 8% extra light.”**



## Facts

**Grower**

Glenwood Valley Farms

**Sector**

High-wire crop

**Crop**

Mini-cucumbers

**Location**

Langley, British Columbia, Canada

**Solution**

Philips GreenPower LED interlighting module

**Philips LED Horti Partner**

CLP

**Results**

Faster maturation and slightly larger fruits resulting in higher production



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