



PHILIPS

Horticulture
LED Solutions

Case study Beijing IEDA
Protected Horticulture

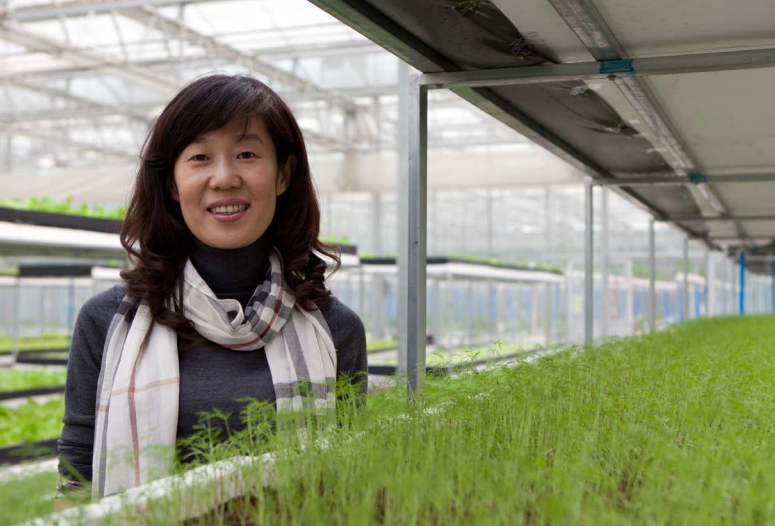
Beijing, China



Philips GreenPower LED production module

**Philips has conducted
over 100 field tests** with
growers and breeders
around the globe

To determine the optimum light recipe for different crops and
different growing conditions



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Philips' LED lighting solutions and unique 'light recipe' approach **can deliver the ideal lighting for city farm set-ups.**”

Beijing IEDA Protected Horticulture Co., Ltd



Background

Beijing IEDA Protected Horticulture Co., Ltd. is a high-tech agricultural company working with the Institute of Environment and Sustainable Development in Agriculture at the Chinese Academy of Agricultural Science (CAAS). It is one of the first companies in China to carry out research into, and promote the application of, key technologies for growing plants in a closed environment, for metropolitan facility horticulture, hydroponic cultivation, multi-layer hydroponic cultivation, etc. The IEDA demonstration center features a 'plant factory' set-up – a completely enclosed multi-layer cultivation system in which all the environmental factors are controlled by computer.

The challenge

All-year-round production of plants in plant factories is achieved by means of precise control and monitoring of the environment and plant growth. The latter requires high-quality artificial lighting. If initial trials with strawberries and lettuce are successful, it will mean that these plant factories can be located wherever they are required in order to supply local markets.

The solution

Initially, non-LED lighting solutions were widely used as the main light source for indoor cultivation. However, their high levels of heat emission and energy consumption proved to be a major disadvantage. In order to apply the best possible LED lighting solutions for the propagation and production of fruit, vegetables and flowering plants in the plant factory set-up, IEDA decided to engage in strategic cooperation with Philips Horti and to install Philips' low-heat energy-efficient GreenPower LED production modules in its plant factory to provide supplementary lighting to the plants.

With LED lighting it is possible to fine-tune the growth light – i.e. the spectral output – so that the optimum light recipe can be applied at every stage of a crop's growth. This capability, together with effective heat management and energy efficiency, opens up tremendous opportunities for the development of a plant factory. In addition, the fact that the LED modules are waterproof, resistant to vibration, have a long service life, and offer design flexibility makes them particularly suitable for use in plant factories. Philips' LED lighting solutions and unique 'light recipe'

approach can deliver the ideal lighting in plant factory set-ups. Philips has conducted over 100 field tests with growers and breeders around the globe to determine the optimum light recipe for different crops and different growing conditions. IEDA and Philips have set up a joint recipe research program focusing on the development of light recipes for high-value crops that can be cultivated in a city farm set-up, starting with lettuce and strawberries. Philips Research Asia Shanghai (PRAS) is also involved in this collaboration. During the cooperation with IEDA, Philips is also committed to meaningful, ongoing follow-up. The company's specialists make regular visits to monitor testing, and this support is very much appreciated by staff at IEDA.

Benefits

The first test set-up with lettuce shows a marked improvement in the quality of the lettuce - more robust plants and better root formation. IEDA is already very pleased with the low energy consumption of the LED production modules and their incredible performance in terms of heat management. All parties are confident that the cooperation will give rise to excellent results and outstanding benefits.

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Facts

Grower

Beijing IEDA Protected Horticulture Co., Ltd.

Sector

City farms

Plant

Strawberries, lettuce

Location

Beijing, China

Solution

Philips GreenPower LED production module

Results

Low energy consumption and incredible performance in terms of heat management



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