



**PHILIPS**

Horticulture  
LED Solutions

Case study  
Shanghai Dadi

Shanghai, China



Philips GreenPower LED production module

**Plant rooting times were reduced by 15%** compared with those under normal fluorescent lights

We will improve plant stand, reduce crop time, increase overall plant health, and also conserve energy during the winter months





“

The plants cultivated with Philips GreenPower LED were stronger. Beside energy saving and low heat radiation, the unique light recipes for tissue culture from Philips **really help the plants to have better and uniformed quality.**”

Shanghai Mother Earth (Dadi) Gardening Seedling Co., Ltd



### Background

Founded in the 1990s, Shanghai Mother Earth (Dadi) Gardening Seedling Co., Ltd. is one of the largest and most modern horticultural seedling enterprises in China. It owns a 1,000 m<sup>2</sup> plant tissue culture factory. Since founding, Shanghai Dadi has used new, advanced production technology and management concepts to establish management systems for the large-scale industrial production of test-tube seedlings. After many years of hard work, the company has become specialized in plant tissue culture, with strong production capabilities, multiple plant varieties, and integrated research, development, production and marketing. Shanghai Dadi exports large quantities of high-quality gerbera, limonium sinuatum and hosta seedlings. With its large-scale tissue culture factory and many foreign customers, the company places great emphasis on seedlings. Due to its frequent international contacts, Shanghai Dadi has the broad international view and innovative thinking necessary to apply the latest scientific technologies to tissue culture production.

### The challenge

Shanghai Dadi's experience and ambition in tissue culture, as well as tissue culture export standards, require that high-quality seedlings grow stronger and more compact. Some special plant varieties may have a low rooting rate, which wastes production materials and increases production costs. In order to realize the greatest plant growth potential in tissue culture production, further improve product quality, and find a more energy-efficient and ecological tissue culture lighting solution (the large number of fluorescent tubes used in the existing tissue culture room consumed significant quantities of energy), Shanghai Dadi decided to carry out experiments together with Philips (horticultural LED lighting) to determine the best lighting solution for plant tissue cultures. For Shanghai Dadi, energy efficiency and environmental protection are also important in tissue culture production, so the best lighting solution should promote plant growth and be energy-efficient and environmentally friendly.

### The solution

With appropriate scientific rigor, a Shanghai Dadi tissue culture cultivation room was used to carry out the experiments, to ensure that lighting was the only variable and all other environmental factors were consistent with those of normal production. Philips GreenPower LED Production Modules with different light spectra and intensities were used, creating different lighting areas. Each area had an independent electricity meter to measure electricity consumption. This way, plant growth and electricity consumption in each area could be analyzed directly. Philips' plant specialists tracked the experiment and provided the necessary services to find a lighting solution that was energy-efficient, environmentally sound, and facilitated plant growth.

### Benefits

After several rounds of experiments, plants grown under the Philips GreenPower LED production modules were more compact and had greener leaves than those grown under normal fluorescent lights, indicating that the plants cultivated with Philips GreenPower LED were stronger. For some plant

varieties, the rooting rate, when cultivated under fluorescent lights, was not satisfactory, but increased dramatically when cultivated with Philips GreenPower LED lighting. Plant rooting times were reduced by 15% compared with those under normal fluorescent lights, resulting in a shorter production period and increased production efficiency.

Shanghai Dadi was very satisfied with these results, specifically the LED lighting's promotion of plant growth and the cooperation with the Philips horticultural LED lighting team. Cooperation between the two companies will continue in the hope of discovering more plant tissue culture applications that can be used in the large-scale industrial production of plant tissue cultures.

“ Philips has a very professional team, that helps us to follow up the project with confident and ease.”



## Facts

### Grower

Shanghai Mother Earth (Dadi)  
Gardening Seedling Co., Ltd.

### Sector

Multilayer tissue culture production

### Crop

Gerbera, Limonium Sinuatum, Hosta

### Location

Shanghai, China

### Solution

Philips GreenPower LED production module

### Philips LED Horti partner

LLC

### Results

Stronger seedlings, higher rooting rate,  
and shorter rooting time





© 2015 Koninklijke Philips N.V. All rights reserved. Philips reserves the right to make changes in specifications and/or to discontinue any product at any time without notice or obligation and will not be liable for any consequences resulting from the use of this publication.

Document order number: 3222 635 67284  
11/2015  
Data subject to change

For more information about  
Philips Horticulture LED Solutions visit:  
[www.philips.com/horti](http://www.philips.com/horti)

Write us an e-mail:  
[horti.info@philips.com](mailto:horti.info@philips.com)

Or tweet us:  
[@PhilipsHorti](https://twitter.com/PhilipsHorti)