



### 3. Cultivation without daylight

The total replacement of daylight by artificial light is primarily associated with climate controlled rooms. In these applications, it is essential that the spectral composition of the artificial light is balanced for optimal plant development.

For cultivation of plants without daylight Philips offers you three solutions:

- **MASTER HPI-T Plus**

HPI-T Plus lamps have a spectrum closer to daylight, and plants develop very well under this light.

- **A 1:1 mix of 400W MASTER GreenPower and 400W MASTER HPI-T Plus**

This combination of light sources has proven a good lighting solution for several species. Compared with HPI-T Plus lamps, MASTER GreenPower lamps offer a higher efficiency in GrowthLight. The little blue in the spectrum of the MASTER GreenPower is compensated by HPI-T Plus.

- **MASTER TL-D Super 80**

The use of MASTER TL-D Super 80 fluorescent lamps (for example colour 830 and 840) is also a very suitable option.

TL-D Super 80 lamps offer the following advantages:

- Low temperature of the tube. This allows short distance between lamps and plants (around 15 cm) and thus the possibility to grow plants in multiple layers.

TL-D Reflex is particularly suitable for this application.

This tube has an internal reflector that creates an efficient lighting system without the need for an external reflector.

- Dimming is possible. The light output of a high frequency system (TL-D HF) is continuously dimmable between 100% down to approximately 8%. The efficiency of the fluorescent lamp is comparable with that of the HPI-T Plus.



For cultivation without daylight Philips recommends:

- MASTER HPI-T Plus
- Mix of MASTER GreenPower and MASTER HPI-T Plus
- MASTER TL-D Super 80



1:1 mix of MASTER GreenPower and MASTER HPI-T Plus