

NL <https://www.hortipower.com/blogs/news/your-guide-to-plant-lighting-at-home>

HortiPower

GROW YOUR OWN.

*Guide to grow lights
at home*



📷 @hendrakuipers




📷 @moestuingroenhart

2019-2022

www.hortipower.com



 @plantswithmarit

Are you looking for a guide for professional lighting for research, tissue culture, vertical farming or greenhouse lighting? Please email us at: info@hortipower.com



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Get Growing



The HortiPower *Nurser 3 and Bloomer 2* growlights will help you to grow the whole-year round. Herbs, Leafy greens and tropical plants grow well with this light, especially when the natural daylight is (too) low.

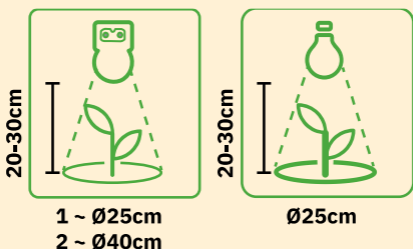
Our Nurser and Bloomer grow lights are designed to support health plant growth.

These products are a first-rate choice among the plant-DIY community and people that love to explore urban gardening.

Care for your plants home. Growth guaranteed.

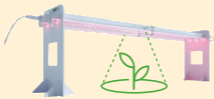
Useful tips

For the best results place the lights at a 20 to 30cm distance from the leaf. Light will be distributed evenly and you can illuminate a nice surface area. Installing it at a distance less than 5 cm might cause tip-burn since the light intensity is too much. And if you're installing it at a distance that is too far, the useful intensity of the lights is greatly reduced.

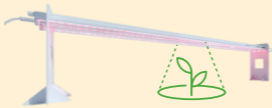


Propagation surface

The lights are designed for the propagation and cultivation of plants and seedlings with a relatively short distance of the plant. Thanks to a modular design you could also expand the lights easily.



0.2m² ~
0.3m²

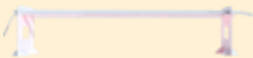


0.3m² ~
0.4m²



0.05m²

The closer you install the lights to the plant, the more light the plants will receive.



20cm	—	100 μmol/m ² /s	10cm	—	189 μmol/m ² /s
30cm	—	57 μmol/m ² /s	20cm	—	63 μmol/m ² /s
40cm	—	37 μmol/m ² /s	30cm	—	32 μmol/m ² /s
50cm	—	26 μmol/m ² /s	40cm	—	20 μmol/m ² /s
			50cm	—	13 μmol/m ² /s

Problems with plant-lighting at home

Plant do not receive the right light

Little light or too much light creates issues with rooting, growth-rate, can cause thin plants, yellow leaves, small leaves, dry leaves and so forth.

Plant growth is dependent on season and daylight


Not possible to grow the whole-year round and growth is inconsistent

Lack of knowledge and easy to use grow lights at home

Often unclear what is relevant for the plant and what not, what lighting requirements there are, often old and inefficient technology

Expensive or not available

Professional lights are often expensive and not available for consumers

 @eaturbangreens

The Nurser 3 and Bloomer 2 are useful grow lights that give your plants that extra bit of light during darker days or darker indoor spaces. The light contains an optimized light intensity and color for plants, including a full and wide spectrum of light and a large quantity of deepred and blue to support photosynthesis. The lights appear white with a soft pink tone, which makes it easier for humans to enjoy the beauty of the plants as compared to early generation purple LED grow lights.

With the optimum light properties of HortiPower you're able to grow your plants always and everywhere.

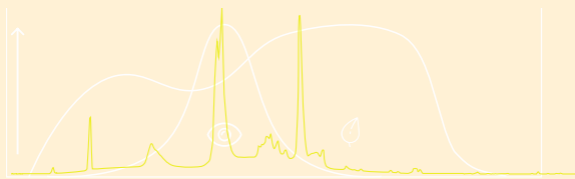
What is plant-centric lighting?



Plants require light for growth and development. The intensity, duration and the content (or spectrum) of light influence the growth and health of the plant. Compared to humans are plants much more sensitive for deep red and blue. Light in these

spectra can stimulate the hormones of the plant. People see especially a lot of light in the green region, which is a color that plants need relatively less.

General lighting for homes and architectural applications contains a large amount of green because the human eye for its visual function is sensitive for this. Therefore a light that seems bright for people isn't necessarily bright for plants.



Above is the sensitivity of the human eye, plants as well as a spectrum of a fluorescent light. For some microgreens and leafy greens you can use fluorescent lights. The fluorescent tube has a peak in the green and orange part of the spectrum and is weak in the blue and deep-red part. When using a fluorescent tube you need a lot of energy to get the same result as with a grow light that is optimized for plants.

Good plant centric lighting (also called propagation lights, cultivation lights) mention plant-lighting specs. The Nurser 3 and Bloomer 2 lights contain a lot of deep-red and a good amount of blue.



HortiPower growlights have around 55% deep-red light and relatively low amounts of green. General lights have low amounts of deep-red and feature a lot of green.

What is the function of each color?

Deep-red light has a relatively high effectiveness to support photosynthesis, leaf development, shoots and rooting. This deep-red lighting is different than normal red light that can be used in ambient lighting at home.

Blue light can reduce the stretching and elongation which can result in stronger and more compact plant growth. It can also support the opening of the stomata.

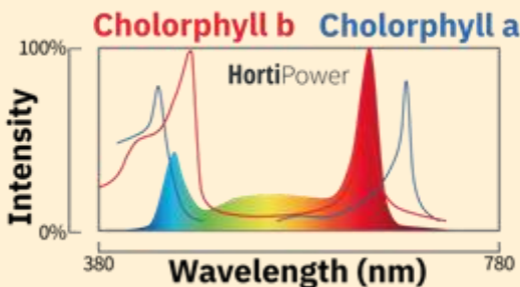
Aside from these colors, **green** light can, in smaller quantities, have a positive effect on growth and development.

It is important to deliver light in the right ratio's so that the plant will grow well.

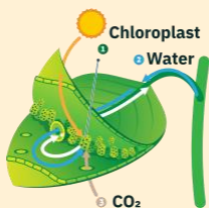


Thanks to scientific research we know what kind of light is preferred by plants and we developed our lighting based on the 65000 light variables in collaboration with scientists in the Netherlands, China, the Philippines and Vietnam.

Below you'll see the spectrum of the Nurser 3 which is good for plant growth and development (color, rooting and so forth).



The light spectrum is made to stimulate the receptors of the plant that can stimulate its growth.



Growth through photosynthesis happens when the plant receives light, water, nutrients and CO₂. The right type of light depends on the plant variety, growth phase and goal of the grower. Our grow lights are optimized to support the health and growth of young plants⁹.

How do you measure light intensity?



For the human eye you measure light in lumen and lux. For plants you measure in micromole and micromole per m² per second (abbreviated in

$\mu\text{mol}/\text{m}^2/\text{s}$). In the above phot you can see that the sensor receives about 3600 lux, this is 81 micromole with Nurser 3 but only 54 micromole with regular lighting. This is almost a difference of 50% in terms of plant lighting, hence we have to measure the light that is relevant for the plant and should not use lux as an indication of light intensity.

What is the importance of light intensity?

You might have heard that light in the summer can be 10x as much as in the winter. The days are often shorter too. The daily light sum is significantly lower and in particular indoors where light levels are even lower than outdoors.

During a sunny summer day can a plant receive up to 1000 micromole on top of its leaf. During the winter the incoming daylight is very little. In greenhouses supplemental lighting is used to boost up the light levels. For example they may add 30 to 90 micromole so that daily light levels range from 60-300 micromole.

At home the window angle is often vertical and a plant behind a window receives about 5 micromole. For germination of seeds and young plants you need up to 60 micromole, and for herbs and leafy greens 150 to 300 micromole.

What can you grow?

You can grow all kinds of plants and flowers.

From seedling to harvest or adult plant:

- 2 Weeks: Microgreens (Cress, Mustard)
- 4 Weeks: Leafy greens (Lettuce, Broccoli)
- 2 Weeks: Herbs (e.g. Basil)
- Edible flowers (e.g. Pansy)

From seeds or cutting to a full grown plant:

- Cacti, succulents
- Tropical houseplants (Monstera, Anthurium, Philodendron)

And many more.

Seedlings*:

- Tomato, Cucumber, Bell pepper
- Potato, Corn

*these plants need to be transplanted in the greenhouse or garden, because they require a large amount of light during later growth stages or are high-wire crops.



Examples



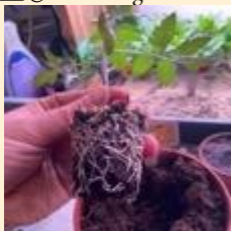
HortiPower Nurser 3 can make your cress grow darker and better (left) vs behind the window in the winter (right)

📷 @moestuingroenhart



The left (with HortiPower shows healthy leaves and color)

📷 @moestuingroenhart



Our grow lights support rooting and you'll get vigorous growth

📷 @moestuingroenhart



Grow your own lettuce

📷 @moestuingroenhart



These lights are great for growing strawberries and inducing flowering



Herbs also like this light
📷@carmenvanheel

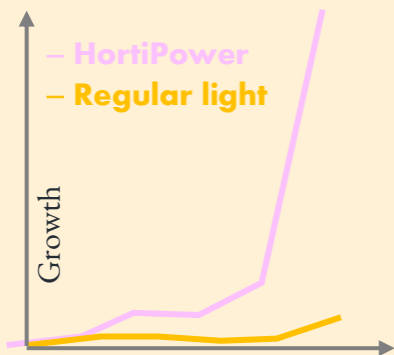


Tropical plants love this light as recreates the natural light
📷@plantswithmarit



Lush growth with HortiPower
📷@plantswithmarit

Research



With HortiPower plants create a thicker meristem, darker green color and vigorous plants - Fortune500 research lab

Several labs and scientists conducted research with HortiPower. They report better plant growth which was measured in weight, dry weight, leaf length, root length, root weight, chlorophyll, diameter and other factors.

FAQ

1. At what distance should I install the light?

20 to 30 cm. You will have a productive area with a diameter of 25cm with one Nurser 3 or one Bloomer 2.

2. How many hours per day should I use the light?

8-16 hours per day.

For example 12 hours for herbs, 12 to 16 hours for leafy greens and 10 to 12 hours for decorative plants. During the day there is photosynthesis, and the plant needs rest at night. Just like in nature. You could use an analogue or digital time-switch. (timeswitch is not included).

3. What is the color of the light, is it purple?

It is white light with a soft pinkish tone. This is comfortable for the

human eye and very effective for plants. This is not pure white, please note. The color perception can change during the day vs the night, this is because the light will mix with existing natural or artificial light that is present. If you have a lot of light the light might look a bit more white or a slight pinkish tone, at night it might look a bit more blue.

4. Are the lights energy efficient?

Yes. They are made according to EcoDesign, RoHS and CE guidelines. This energy label indicates class C because the energy label only recognizes light for the human eye, but not the amount of plant-centric light (micromole). For Micromole efficiency there is no European energy label available.

5. What does the light do for the plants?

It supports the growth and development of the plants. Growth

takes place through photosynthesis and this lamp contains the right light that supports leaf growth, plant growth, biomass and color. For the development of the plant it also supports rooting (longer roots, thicker roots, faster rooting).

6. Is HortiPower your own product and technology?

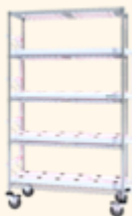
Yes. We developed this product by ourselves from product concept to product. We have about 19 intellectual properties including patents for horticultural lighting. HortiPower is our registered brand in the European Union, The United States, China and various other countries.

7. What else are you working on?

Tissue culture lighting, in particular for bananas, pineapple, orchids.
Vertical farming lighting for especially leafy greens and herbs

where freshness and taste is important.

A mobile garden based on the IKEA OMAR shelf or CC cart, which is enough to grow 12 salads per week or 75 strawberries.



We also develop software for the automation of horticultural lighting.

Visit our website:
www.hortipower.com

Questions or got something to share? Mail us
info@hortipower.com or tag/DM us
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