Choosing an Indoor Home Growing Kit

With increasing interest in growing edibles, consumers are looking at the use of home kits to grow their own vegetables within the home. There are many home growing kits available through online markets that they can choose from to suit their lifestyle. However, not all kits are made equal and not all will perform well.

This guide will provide you with information about some design features to look out for in an indoor home growing kit to make your edible growing journey smooth and enjoyable!

(Image Source: KLAS.store, Benelum.com, Clickandgrow.com, Hydrofarm.com)

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(Image Source: Gardeningproductsreview.com)

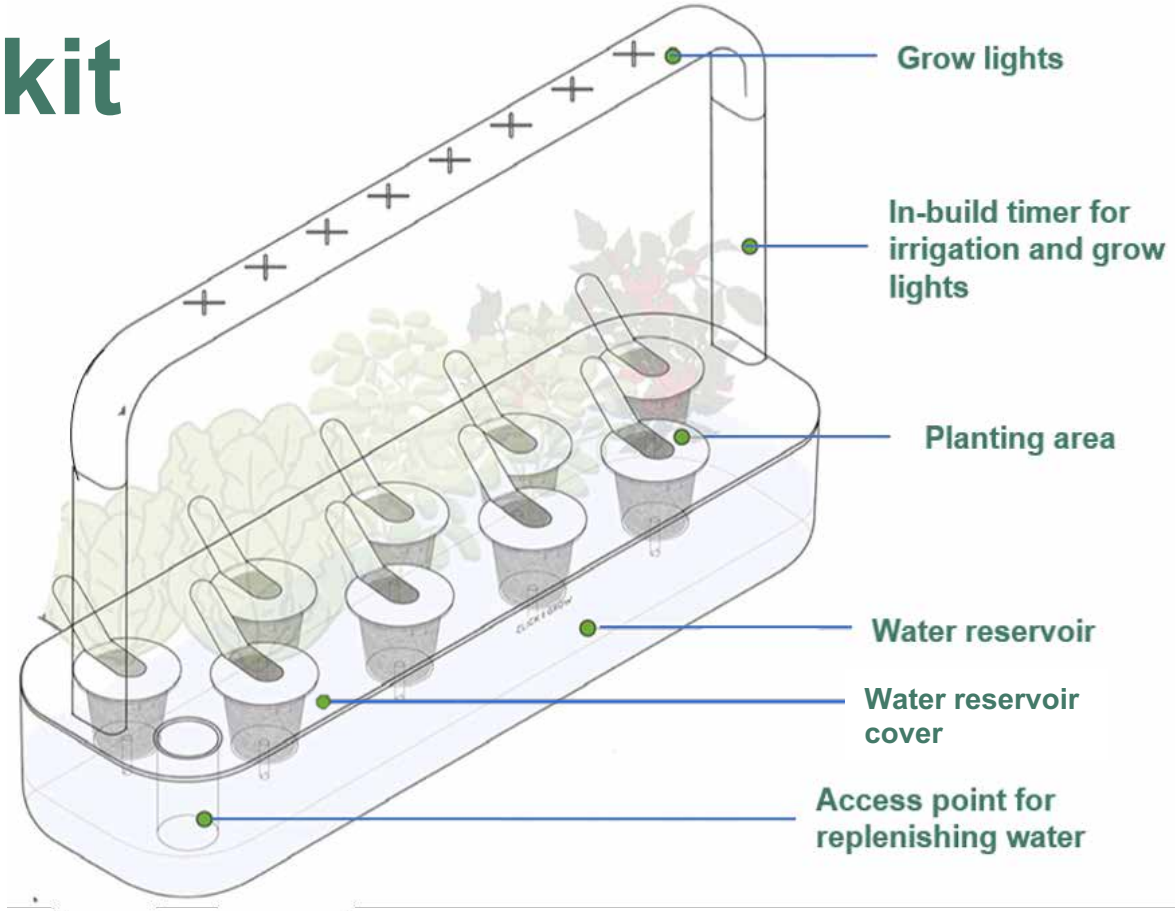
What makes up a home growing kit

Components of a typical kit

Most indoor home growing kits use **hydroponics** where plants will sit on a reservoir of water or nutrient solution.

A typical indoor hydroponic home growing kit consists of a water reservoir tank with cover, growing cups/pots to hold plants and grow lights.

An instruction manual will tell you how to assemble the water reservoir tank, putting its cover which also holds the growing cups/pots. Plants will be grown in the cups/pots with the roots sitting in the water in the reservoir tank. Grow lights will be mounted on a support and placed over the growing plants.



General features of a indoor hydroponic home growing kit
(Image Source: Clickandgrow.com)

Design elements to consider

Dedicated Water Access Point

Water is important when growing edibles. Typically, if the kit comes without a water reservoir, daily watering of the plants is needed. Not providing enough water could reduce the rate of plant growth by 20-30%.

Besides topping up the water, you may also need to supply plant food (e.g. hydroponic nutrient solutions) at least once a week.

A dedicated watering top up point is a good design feature to have as it will make replenishing water (or nutrient solution) easy, without the need to remove plants to access the water reservoir. Usually a dedicated water access point can also be used as a water level monitoring window as well.

(Image Source: Celesta.com, Dezeen.com)

Water Window to Monitor Water Level

Plants transpire and use up water in the reservoir tank. The bigger the plants the faster the water will diminish. The water in the reservoir would need to be topped up regularly so that the plants have enough water to grow.

A water window in the reservoir will allow you to easily monitor the water level so that you know when to top up the water without having to take out the plants. Alternatively you can choose a kit that has water level sensor incorporated into the growing system

Examples of indoor growing kits with window (above) or water level sensor (bottom)

(Image Source: Amazon.com, Lazada.sg, Trees.com)

Adjustable Height of Lights

In the indoor setting, providing enough light is critical for plants to grow. Kits that allow the height of lights to be adjusted will allow better control of the amount of light that the plants receive.

For small plants, the lights could be placed close to the plants so that sufficient light fall onto the leaves. As the plants grow taller, the lights should be moved upwards to prevent the leaves from touching the lights, otherwise the leaves may become scorched.

If your edibles require less light to grow, you can always increase the distance between the lights and the edibles to reduce the intensity.

Examples of an indoor hydroponic home growing kit with adjustable height to accommodate plant growth

(Image Source: urbanfarmonline.com, aerogarden.com, amazon.com)

Easy Dismantling

It is highly recommended to wash your indoor home growing kit at least once every three months to prevent the build up of plant diseases and algae.

An easily dismantled system will allow thorough cleaning of the various parts and easy re-assembly for further growing. Generally, the taller systems or systems with a lot of pipes are difficult to clean, especially if algae grows in areas where it cannot be easily reached (joints etc). You should also look for a kit that allows the cover of the water reservoir tank to be removed so that the interior of the tank could be cleaned.

Majority of indoor hydroponic home growing kits are modular in design and does not have much complicated parts

Typically vertical or hanging type systems are quite difficult to wash as you will need to dismantle all the parts

(Image Source: amazon.com, benelum.com)

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Light Requirements

Is the light sufficient?

Which lights to choose?

(Image Source: ul.com)

Light Requirements

For indoor home growing, light is one of the most important factors that determines your success in growing edibles!

All plants require light of a certain intensity to photosynthesise and grow well. This intensity is measured as **photosynthetic photon flux density (PPFD),** which determines the amount of light energy that reaches the plant over one square metre.

All plants when given the minimum PPFD and with enough exposure to the light (typically 12 hours) will be able to grow well

It is highly recommended to check with the supplier of a home kit on how much PPFD lights has before making your purchase!

Minimum PPFD requirements	
Seedlings/microgreens	100 -150 µmol/m2.s.
Lettuce	150 – 200 µmol/m2.s.
Other leafy vegetables such as Pak- choi and herbs	200 - 400 µmol/m2.s.
Fruited vegetables	400 – 700 µmol/m2.s.

Lettuce will have stronger and compact leaves under higher PPFD

(Image Source: Scientia Horticulturae Vol 235)

Is the light sufficient?

Majority of LED lights and home growing kits in the market only mention about the **wattage** of the LED.

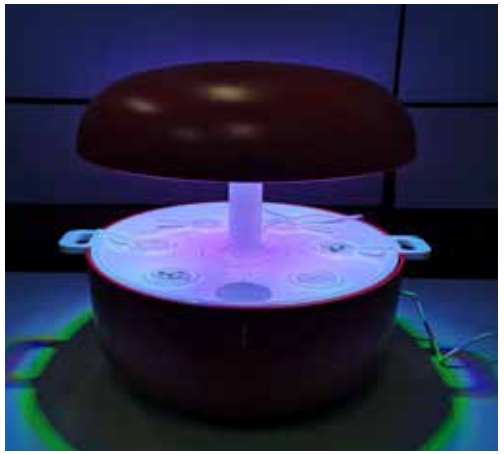
To get a general idea of the amount of PPFD your lights have, you could use the following conversions:

For cool white lights:

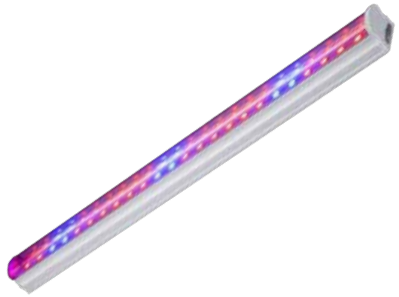
PPFD = Wattage of LED/0.38

For reddish/bluish lights:

PPFD = Wattage of LED/0.29



Home growing kit with red and blue LED



(Image Source: Amazon.sg)

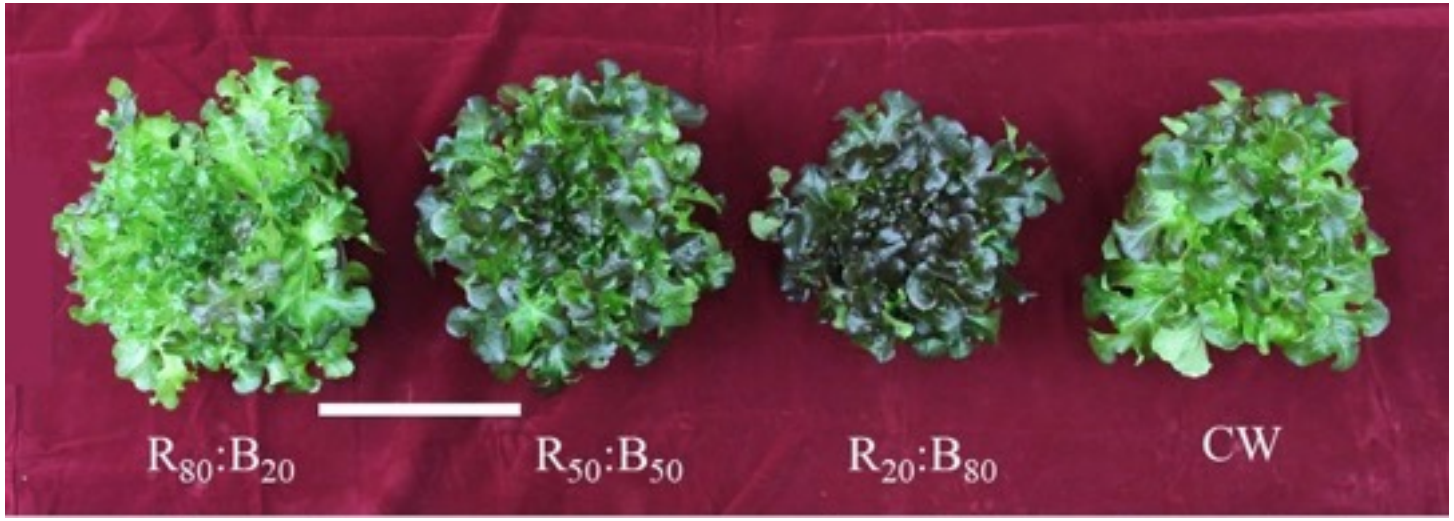
Home growing kit with whole spectrum cool white LED

Which lights to choose?

The amount of information regarding light and effects on growth can be overwhelming for the beginner.

As a general rule of thumb, a cool white light with full spectrum of at least 200µmol/m2.s when placed 10 cm away from the surface of your plants is recommended for general edible planting.

Microgreens will grow at a lower PPFD of 150µmol/m2.s or less



Different ratio of blue and red lights will produce different growth pattern in the same edible. This can be quite confusing for beginners and it is recommended to focus on Cool white (CW) full spectrum lights. (Images Source: HortTechnology. 28. 755-763. 10.21273/HORTTECH04024-18.)

Vegetables grown in lower PPFD tends to be tall with weak stems and fall over easily. As shown in the picture, lettuce with higher PPFD become compact with more leaves.

(Images Source: HortTechnology, valoya.com)

03

Maintenance

Step by step guide on how to conduct daily maintenance for your indoor hydroponic home growing kit to increase your success!

(Image Source: university.upstartfarmers.com)

Maintenance is still required!

(Image Source: youtube.com, aquaponictrend.blogspot.com, luv2garden.com)

Although an indoor hydroponic home growing kit may claim to be fuss-free, daily checks would still be required to make sure that the system is working well.

Regular cleaning of the growing kit is also important to remove build-up of disease and algae. Scrubbing of the water reservoir and growing pots may be needed to remove plant debris.

Monitoring for Mosquito Breeding

Indoor hydroponic home growing kits that have a water reservoir poses a risk for mosquito breeding!
[Note: mosquitoes could also breed in nutrient solution]

Although it may seem that there are no gaps for mosquitoes to access the water in your indoor hydroponic home growing kit, it is always a good practice to check the water regularly for potential mosquito breeding (best if this could be done through the water window)

A poorly designed indoor hydroponic home growing kit may have nooks and crannies where water can stagnate, leading to potential mosquito breeding

(Image Source: news.medsbla.com)

Maintenance schedule

Daily maintenance

- Ensure water level is adequate
- Ensure that any growing substrate is moist
- Monitor water for mosquito breeding
- Add nutrient solution as per manufacturers' instructions
- Check that grow lights is working according to schedule if it is on a timer
- Remove dried leaves from your edibles
- Ensure that the cover is tight over the reservoir tank
- Ensure that circulation system (if any) is in working condition

Routine maintenance (every three months)

- Dismantle and clean system to remove algae and/or disease build-up
- Ensure all electrical parts are in working order

Summary

How to choose an indoor home growing kit

- Dedicated water access point
- Window to monitor water level
- Adjustable height of grow lights
- Easy dismantling for cleaning

Light requirements

- General full spectrum grow light
- PPFD of at least 200μmol/m2.s

Maintenance

- Maintenance is necessary!
- Daily and routine maintenance
- Monitor for mosquito breeding

(Image Source: hortibiz.com)

We hope that this guide has been useful for your journey in growing edibles at home!