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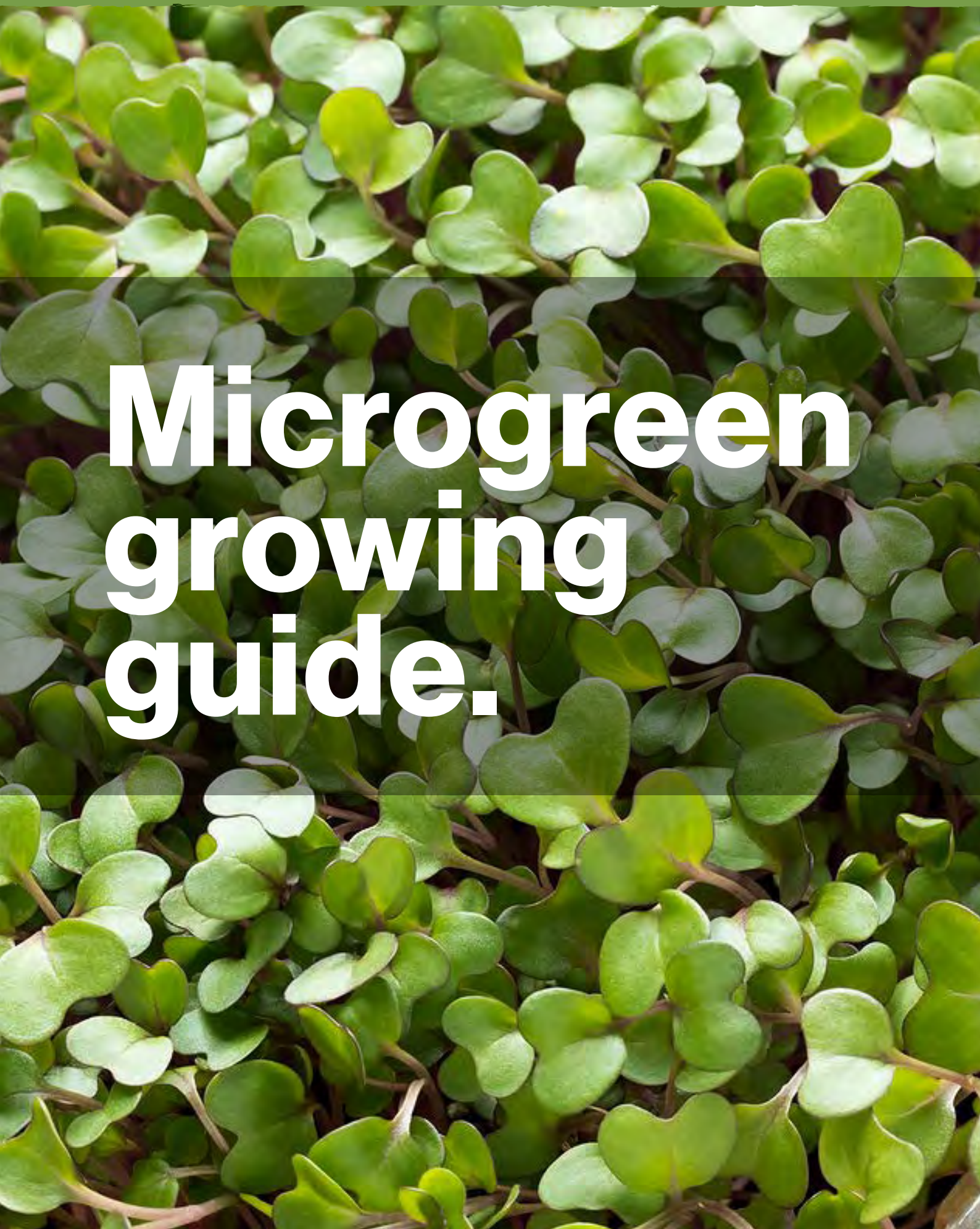

Microgreen growing guide.

What are microgreens?

Microgreens are used to describe smaller, young, edible greens that germinate in soil or a soil substitute, from the seeds of vegetables and herbs. They are harvested at an earlier stage than traditional greens (when the first cotyledons appear). They have grown in popularity due to their nutritional value, flavour and texture enhancement to many dishes.

Tips to growing your microgreens:

- The first step in setting up your microgreen station is to wash and sterilise your trays and seeds
- Using a brush or pressure washer, remove organic residue on trays
- Sterilise them using a bleach/water solution (1/100) for 5-10 seconds. (3/100 ratio for food grade hydrogen peroxide)
- Sterilise your seed (only necessary for pea and sun shoots)
- This is done to reduce the risk of fungus issues on the shoots
- Use a mesh cloth bag to soak seeds
- Sterilise seeds in the bag by filling a bucket with 2L of water, adding 20ml of white vinegar and 20ml of food grade hydrogen peroxide to the bucket
- Allow them to soak for 10 minutes, any more can kill the seed
- After sterilising, rinse the seeds and let them soak in a clean bucket overnight
- Drain, rinse and plant the following day
- Fill trays with peat based soil (a mix of 70% coir peat to 30% perlite) gives a light, fluffy and aerated mix:
- Trays should be around 1 – 2 inches deep
- Fill trays almost to the top
- Flatten the soil firmly
- This can be done using a wooden board or something similar
- Water before spreading seeds (except for micro radish)
- Water soil once evenly over the tray
- Spread seeds across the soil trays evenly
- Seeds should be close to the edges of the tray
- After ensuring they're evenly spread, cover them with an empty tray and add some weight to the top of the tray

Microgreens and mould: How to identify and prevent mould

Mould and fungi can be a common problem among microgreens as they thrive in the right conditions. These occur when there is a lack of proper drainage, air circulation and lighting.

Root hairs can look similar to mould. The distinct differences between them are that root hairs are thinner, featherlike cilia that grow from the

roots, aiming to increase surface area of the new seedling, to help with nutrient uptake. They do not have an odour and only appear close to the root of the sprout.

Mould, however, appears in small, stringy strands. They overtake a tray of microgreens quickly when given the right conditions. The keyidentifiers of mould and fungi are:

- Pungent odour
- Grows above the soil, on the greens
- Slimy texture
- Cannot be removed by rinsing
- Can be black, purple or blue spots on the leaves of greens

Damping-off in microgreens

- Without adequate airflow, soil-based fungi can result in a condition known as damping-off. This occurs when the wet microgreens create an anaerobic environment, leading to the loss of the tray
- The mould then takes the nutrients away from the microgreens, resulting in them falling at the base. The fungi then attack the root and stem.

Mould prevention:

- Ensure the trays you are using have drainage holes
- Use adequate soil with good drainage
- Do not plant the seeds too densely as they will not be able to properly drain because the roots can mat together
- Control the humidity of your growing space
- Allow for proper air circulation (fans can be used for this)
- Ensure good lighting conditions, typically 6-10 hours a day
- Some seed varieties suggest pre-soaking and disinfecting to reduce risk of mould
- Properly disinfect planting trays with hydrogen peroxide
- Implement the bottom watering method

Weights on microgreen trays

Weights are an effective tool to ensure seeds are kept moist, leading to faster germination time and ultimately a higher success rate.

This is because it traps the humidity within the soil, keeps the seeds in contact, loosens the hulls resulting in the plants shedding easier, allowing for quicker rinsing.

Weights are used during the initial germination phases. Following filling the tray with soil, evenly distributing the seeds across its surface and watering (for some), add another tray with a suitable weight. The weight should be used for around 3 – 4 days, until germination.

Once all seeds have germinated, the blackout period ensues. Kale, sunflower and radish have all been tested with weights and it has been proven that adding a weight of 1 – 3 kg improves microgreen production. However, broccoli has been found to not need a weight.

Tips on lighting:

Sunlight

- A windowsill or small green house can be an effective and inexpensive option for home growers.

Fluorescent shop lights

- Similar to LEDS in their light production but will use more power to run while producing more radiant heat. This can be problematic, so they are not recommended for growing.

LED bulb lights

- A good option to begin trialling growing indoors or partnered with a vertical rack, to increase growing capacity with limited space
- They produce minimal heat
- Work with 120V household electrical outlets

LED strip grow lights

- Daisy chain compatible, allowing for multiple lights to be joined together for larger spaces
- Allows for vertical mounting
- Full light spectrum allowing for longer growing periods
- Produces minimal heat
- Most work with 120v household electrical outlets

LED panel lights

- The strongest option for growing indoors
- Generally used in large scale commercial growing that need plants to reach full size
- May be unsuitable for microgreens due to high light intensity

Proximity of lights to microgreens

- This is dependent on the light source as heat generated by lights can differ and too much heat can burn microgreens. Most LED strip lights don't generate substantial heat that results in problems and are typically placed 6-12 inches from the surface of the growing greens.
- Greens placed further away from the light source tend to stretch towards the light and will often become leggy.
- Panel lights prove to be of higher intensity and can therefore be placed further away from the greens growing surface.

Length of time your microgreens should be under light

- A minimum of 6 hours a day is necessary to allow for plant growth.
- If sunlight is the main light source, there is a given limit of sunlight available, therefore you should be aware of shade patterns and light direction when setting up your plants, to ensure maximum light is achieved daily.
- For indoor lighting set-ups, many growers choose to keep their lighting on 24/7, to speed growth.
- However, others suggest a rotation of 12 hours, 12 hours off, to allow for plant resting time.
- It is suggested you find what works best for you in this regard as differing conditions will change the outcome (colours, flavours) of the greens, so find what works for you!


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