

Hydroponics: *DIY Microgreens Tray System*



Here is a step by step to guide you through making a simple **microgreen** growing tray system. Using items readily available online or at the garden centre.



Key words

Compost
Cotyledons
Germinate
Growing Media
Microgreen
Reservoir
Root System
Wicking



Caution! Make sure a trained adult is helping to build this as power tools can be dangerous.



Learning

KS2: Plant lifecycle
 KS3: Photosynthesis
 Mathematics: ratio / nutrients
 Design & Technology: Manufacture, Iterative design process (improve and develop)

Equipment List

2 identical trays we are using 57.2cm (l) x 38.8cm (w) x 5cm (h) 9 litre trays	
Drill	
Drill bit (to fit wicking cord)	
Growing medium (we are using coco coir)*	
Seeds	
Nutrient solution	
Water spray bottle	
Wick	

* If you'd prefer to use **compost**, make sure it is fine sieved. This will make it easier for roots to spread throughout the media. If using compost, you can use just water in the reservoir instead of nutrient solution.

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Step 1

Choose your trays. You'll need at least 2 trays for this self-watering system. We've gone with 57.2cm (l) x 38.8cm (w) x 5cm (h) 9 litre trays which are ideal for a good sized crop



Step 2

Make some holes. We drilled 4mm holes to match the size of our wicking cord. Space the holes out so you can have a good length of cord running along the bottom of the tray. Don't get carried away though, too much cord may end up leaving the growing media over saturated.



Step 3

Threading the cord. Next, we threaded the wicking cord through the holes.

Make sure to leave between 5cm-10cm of cord hanging out of the bottom of the tray, this will ensure there's enough cord length to reach the nutrient solution in the reservoir.



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Step 4

Making a reservoir. We used a second tray to create a reservoir for the nutrient solution. You can increase the volume of the ***reservoir*** by placing some spacers inside. This will raise the growing tray, making more room for nutrient solution. We had some spare plastic feet that were ideal. Remember not to use anything that will rust or deteriorate whilst in the nutrient solution.



Step 5

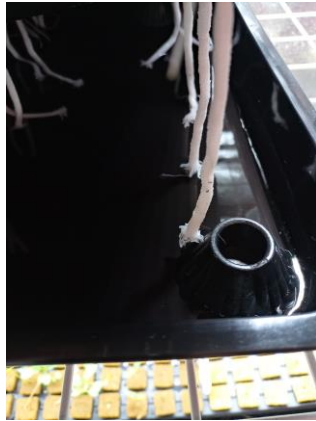
Seeding up. We then filled the growing tray with coco coir and sowed our chosen micro green seeds. Try not to sow too heavily, you can always adjust quantities on the next grow run.



Step 6

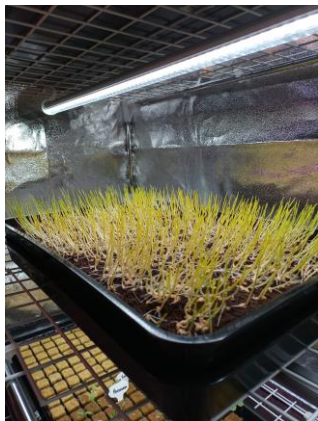
Germination. We sprayed the seeds with a little water to start the ***germination*** process. Placing another tray or cover over the seeds will block out any light and aid with the germination process. The seeds should start to germinate within a few days, so remember to keep an eye on them and spray with a little water if needed. Once the seeds start to germinate, you can turn the covering tray upside down, this will give the seeds a bit more room to stretch before removing the tray completely

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Step 7

Filling the reservoir. Once the seeds have started to germinate, it's time to fill the reservoir with nutrient solution. The first fill will be used up quite quickly, as the nutrient solution is wicked into the growing media. Check the reservoir the following day and top up, as necessary. After the reservoir has been topped up, it should last several days before it will need topping up again. When the seeds have produced their first set of leaves (***Cotyledons***) It's time to remove the covering tray and place them in a sunny spot.



Step 8

Harvesting.

Your micro greens should be ready to harvest within a couple of weeks, or as soon as you see them starting to produce a set of their true leaves. After you've harvested your micro greens, you'll want to remove the growing media in preparation to start the next batch. The media should lift like a piece of matting due to the extensive **root growth**.



This is a positive sign and it's great to see how healthy and productive the roots have been.

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Key Words:

Compost	It is commonly prepared by decomposing plant, food waste, recycling organic materials and manure. Used as fertiliser and to improve soil health.
Cotyledons	Cotyledons are the first leaves produced by plants
Germinate	Germination refers to the process by which an organism grows from a seed or a spore.
Growing Media	Growing media, also known as a growing medium, is the material in which plants grow. This could be soil, compost, coco coir or clay pebbles for example.
Microgreen	Microgreens are young seedlings of edible vegetables and herbs
Reservoir	A reservoir is an artificial lake where water is stored. Most reservoirs are formed by constructing dams across rivers but here we are talking about small reservoirs made from plastic tubs.
Root System	The roots are the long stringy part that travel underground, they serve three primary functions: they anchor the plant, absorb water and minerals for use by the plant, and store food reserves.
Wicking	Water containing nutrients is drawn up through the wicking strong, via a process called capillary action or wicking.