



## Urban Gardening Manual

Improvement of Green Infrastructure in Jordan  
through Labor - Intensive Measures (CfWGI)



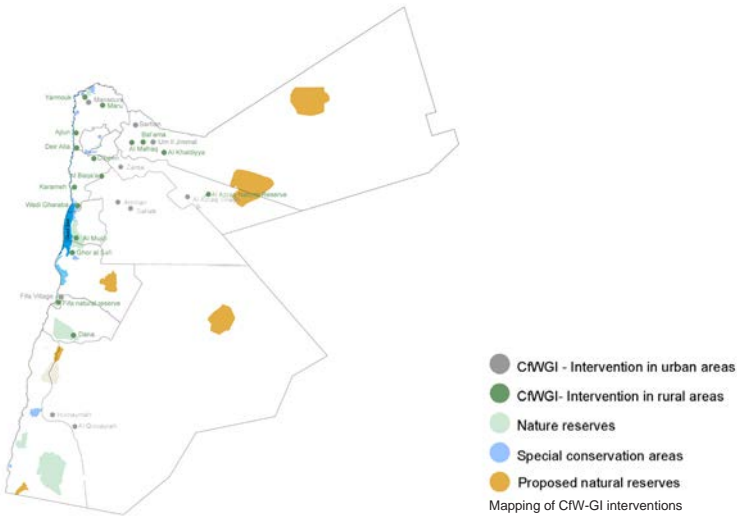
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## Cash for Work Green Infrastructure (CfW-GI)

Commissioned by	German Federal Ministry for Economic Cooperation and Development (BMZ)
Implementing agency	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Political partner	Ministry of Environment
Duration	Nov. 2017 - Nov. 2022

Cash for Work Green infrastructure project is part of BMZ special initiative “ Tackling the root cause of migration, stabilizing host regions , supporting refugees”. The project contributes to developing and servicing green infrastructure and the employment of Syrians refugees and Jordanians in need. It also promotes social cohesion and sustainable development in the region.



# Easy to grow vegetables, herbs and legumes:



Cabbage



⌚ Celery



⌚ Romaine lettuce



⌚ Green onions



Peas



Carrots and leaves



⌚ Beet and leaves



Onions



Garlic



⌚ Radish and leaves



Potatoes



Ginger



Peppers



Pumpkin



⌚ Turnips and leaves



Cucumbers



Zucchini



Tomatoes



Eggplants



Cilantro



Sage



⌚ Spinach



Parsley



Mint



Basil



Rosemary



Thyme



⌚ Micro-greens

⌚ Vegetables that grow in 30 days or less

# Growing Vegetables from Food Scraps:

Vegetables that can be regrown from food scrapes include:



Cabbage



🕒 Celery



🕒 Romaine Lettuce



🕒 Green onions

Steps to regrow - romaine lettuce, celery, cabbage and green onions:

- Cut the bottom part of cabbage, celery, romaine lettuce, while leaving about 5cm. For green onion cut the bottom leaving 2cm.



- Place the cutting bottom down in water and place in a sunny location.
- Leave in water for 7- 10 days (roots should start to show) then transplant into soil.
- Harvest in 4 to 8 weeks.





🕒 Carrot leaves



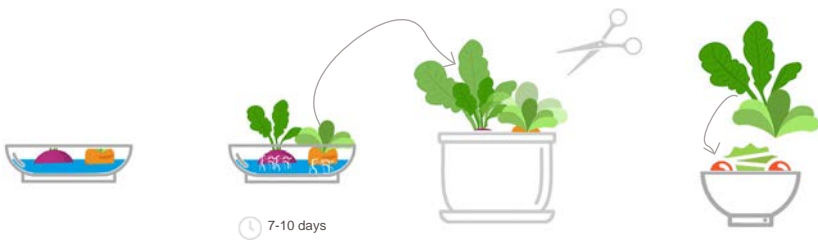
🕒 Beet leaves

### Steps to regrow - Beet and carrot leaves:

- Start with Carrots and beetroot that still have leaves.
- Trim the leaves off. You can use them in salads or cook them.
- Cut the top part leaving at least 2cm of the vegetable attached.



- Put the cutting face down in shallow water and place in a sunny spot.
- Change the water regularly every 2 to 3 days.
- After 7-10 days, Transplant them into soil.
- You can keep collecting the leaves as they grow. Since more leaves will grow back.

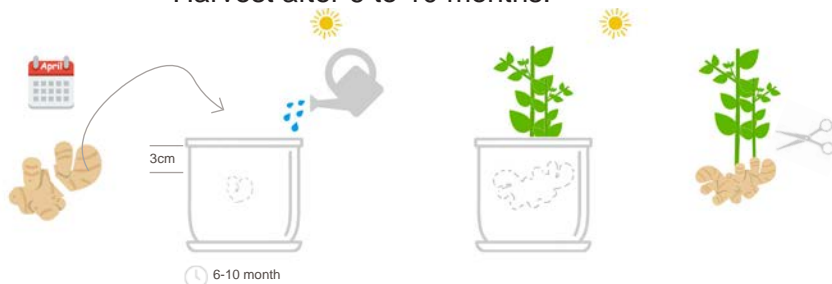


## Other Vegetables that can be Regrown from Available Produce:

### Ginger



- The best time to plant ginger is mid spring.
- Use at least a 2.5cm piece with eyes
- Plant in soil (70% compost) 3cm deep and water
- Place in semi-shade, while keeping the soil moist and well drained.
- Harvest after 6 to 10 months.



### Potatoes



- Take a jute (e.g. rice bag) or a bucket with drainage holes to plant the potatoes in or plant them directly in your garden in well drained loose soil.
- Start with potatoes that have eyes already. Fill the bag or bucket 3/4 the way with a mixture of potting soil and compost (50/50)
- Plant the potatoes and water them.
- After about 10 weeks they are ready to harvest. The plants will become droopy and topple over.





## Onions



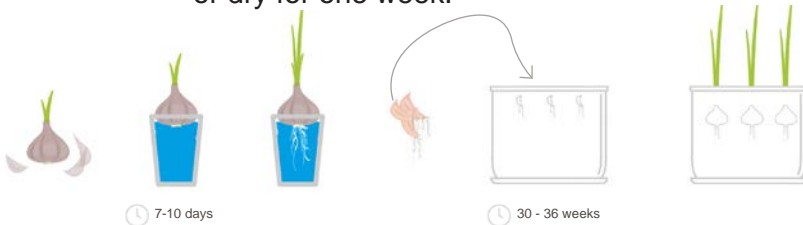
- Cut the onion bottom off, while leaving 3cm of the onion on the root.
- Place the onion in soil in sunny location, making sure to cover the top with soil with the bottom part facing down. Then water sufficiently.
- Make sure to keep the soil moist.
- They should be ready to harvest in about 4 weeks



## Garlic



- Starting from a garlic head that you have at home, remove the outside peel without breaking it.
- Fill a glass with water and place the garlic inside. The water should stand up to the bottom of the garlic.
- Leave in water for 7-10 days, until roots and shoots should start to appear.
- Break the cloves and plant them in soil and water daily. Spacing between them should be a min. of 10cm.
- Make sure to cut any flowers that start to develop.
- Harvest after about 8- 10 months. Use immediately or dry for one week.



# Growing Vegetables from Seed

## Tomatoes



- Collect the seeds from a tomato that you have at home and rinse them.
- Place the seeds in a pot and cover with soil. Use rich potting soil and place them indoor in a warm sunny location.
- After 2 months the seedlings are about 15- 20cm tall and can be transplanted outdoors. Make sure that they are planted in a sunny spot and are watered regularly.
- If you would like to keep them in a container make sure the container is at least 45 cm in diameter and 40cm deep and the pot has holes for drainage in the bottom.
- As the plants grow, they will require support with a stake.
- It would typically produce new tomatoes between 40- 60 days after planting.
- Cherry tomatoes are the fastest to grow



## Cucumbers



- Take a cucumber you and cut it in half lengthwise.
- Scrape the middle part which contains the seeds out with a spoon.
- Rinse the seeds with water. The good seeds will stay at the bottom.
- Place the seeds in a warm, dry area away from

direct sunlight to dry them.

- Plant the seeds in loose growing medium about 2.5 cm deep.
- Place in a bright location and keep the soil moist.
- Seedlings should pop out in a matter of days. It takes 7 to 10 days for seeds to germinate.
- When transplanting them make sure to space the seedlings about 60cm apart.
- Plant in a sunny location and water regularly.
- Cucumbers should be ready for harvest after about 3 months.



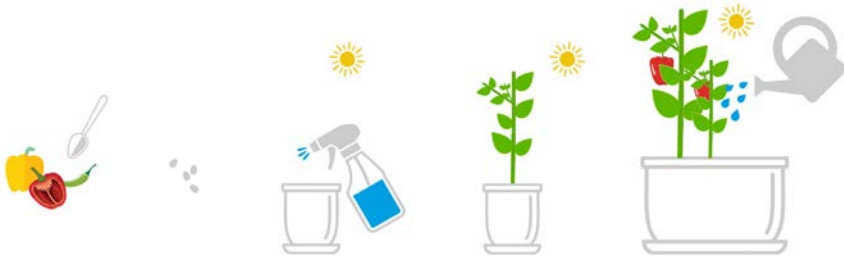
## Peppers



- Cut the pepper and take out the seed pod.
- Scrap the seeds into a bowl and place in a warm, dry area out of direct sunlight to dry.
- They are ready to plant once they snap when folded between your fingers.
- Plant seeds 0.5cm deep in moist and loose growing medium.
- Water regularly and place in a warm and sunny location. Seeds germinate best when the temperature is between 21-30 °C.
- Keep the soil moist and use a spray bottle to

water.

- Transplant the seedlings into a pot (if planting in a smaller seed starting container).
- Keep in a sunny location and water regularly.
- These steps can be applied to all kinds of peppers.



## Pumpkin



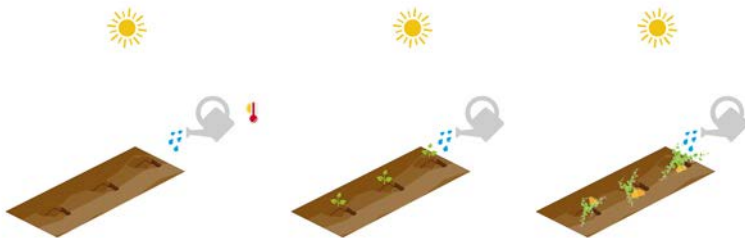
Pumpkins are best planted directly in the ground or in a raised bed. Wait until the temperature is warm enough to grow. 🍂❤️🌡️

The ideal soil temperature to grow pumpkins is between 21- 30°C (30 °C is the optimum). Pumpkins are very sensitive to cold weather. The soil should be loose and mixed with compost before planting the seeds.

- Collect the seed from a pumpkin you have.



- Plant the seeds in rows or pumpkin hills in a sunny location. A pumpkin hills is a small mound of soil. It helps the soil to stay warm, which speeds up the germination.
- Plant the seeds 2.5cm deep, with spacing of 120cm - 200cm apart and water sufficiently.
- The seedlings should show after 5 to 10 days.
- When the plants are about 7cm tall, cut most of them off leaving only 2 or 3 per hill, without disturbing the roots.
- Water regularly, pumpkins require a lot of water.
- Harvest when the pumpkin reaches the desired size and when they are ripe.
- Pumpkins take 4 months to mature.



## Eggplants



- Take an overripe eggplant (typically hard and shriveled). Slice the eggplant and collect the seeds.
- Put the seeds in a glass of water to rinse then collect the seeds and spread them on a tray in a dry area away from direct sunlight.
- Eggplant seeds have to be started indoors. Place the seeds in growing medium 0.5cm deep and loosely cover the seeds and water.
- Plant the seeds in a plastic container with a cover or in a pot and then cover with a plastic bag or a

clear recycled plastic bottle.

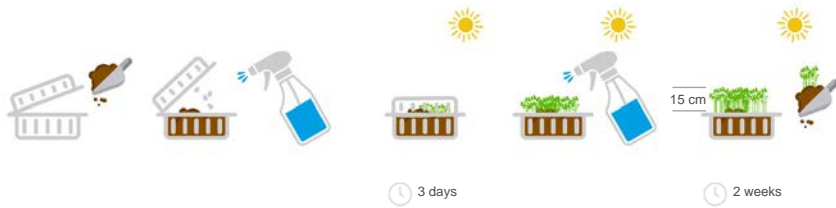
- Water using a spray bottle and place in a sunny spot.
- Generally, eggplants germinate in 7 to 14 days.
- Transplant into bigger pots once the seedlings have grown and regularly water them.
- Harvest the eggplants once ready, it would take about 70 days after planting.



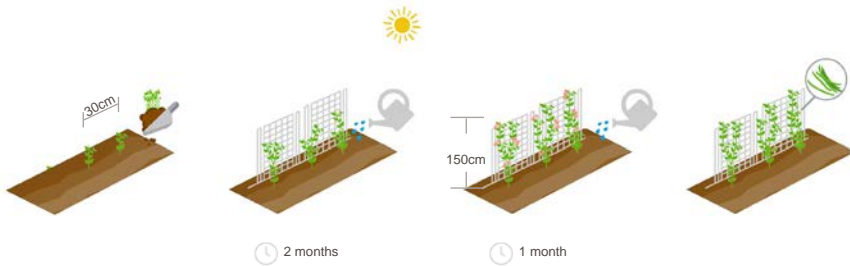
## Peas



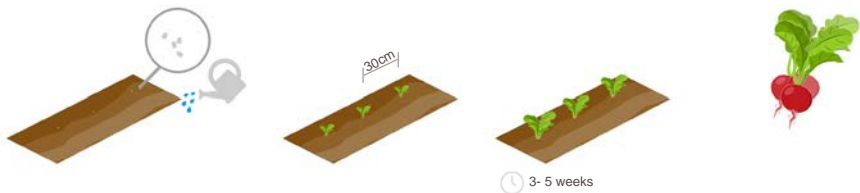
- Peas are best planted in spring.
- Fill a plastic container with potting soil.
- Plant pea seeds 1.5cm deep and 7.5 cm apart and place them in a sunny location.
- Water the seeds using a spray bottle and close the container.
- After three days the seedlings become visible. Open the lid and keep watering regularly.
- After two weeks the seedlings are 15cm tall and are ready to be transplanted into a bigger pots or outside.
- Scoop up the soil and seedlings to transplant.
- Transplant the seedlings 30cm apart. They need a structure to climb on, so make sure to provide them with a trellis-like structure.
- Water regularly and keep the soil moist.



- The peas will grow up to 150cm tall.
- After 3 months the peas will be ready to harvest.



- 🕒 Radishes
- Radish are best to grow in spring and autumn.
  - Place radish seeds in soil 30 cm apart and 1-1.5cm deep. Plant them in well drained and loose soil.
  - Water regularly.
  - Harvest after 3-5 weeks.



## Turnips and leaves



- Turnips are best planted in spring or autumn.
- Plant the seeds in well drained and loose soil 1-1.5 cm deep and 10cm apart.
- Water regularly.
- Seeds take 2 weeks to germinate.
- After 2 months the turnips are ready to harvest.
- The leaves are also edible. 😊



## Beets and Carrots



- Beets and carrots can easily be grown from seeds.
- Plant the seeds in well drained and loose soil 1-1.5 cm deep and 10cm apart.
- Water regularly.
- After 3-4 months they are ready to harvest.
- Their leaves are also edible. 😊

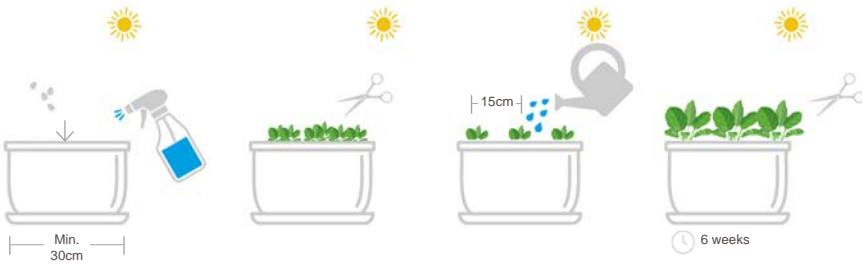




## 🕒 Spinach



- Spinach can be grown in spring or fall.
- You can, first plant spinach indoors or plant them directly outside. You can also plant it in containers or in the ground.
- Plant seeds in a sunny location, in well drained soil. (If growing spinach in container indoors make sure to place the container next to a window in direct sunlight).
- Cover lightly with soil and water.
- Keep the soil moist until the seeds germinate.
- Spinach is fast growing and can be harvested as the leaves grow. Typically you can start harvesting them 6 weeks from sowing. Make sure to not harvest everything at once.



## Parsley



- For better germination soak the seeds overnight before planting.
- Plant the seeds in moist, rich and well drained soil. You can first plant parsley indoors and then transplant it or plant them directly outside. (If growing Parsley in container indoors make sure to place them next to a window in direct sunlight).
- Cover lightly with soil and water.
- Keep the soil moist until the seeds germinate. The best soil temperature to grow parsley is about 21°C.

- Parsley is a slow starter - it can take up to 3 weeks for seeds to sprout.
- Water regularly.
- It can be harvested as the leaves grow. Typically you can start harvesting them 70-90 days from sowing.



## Zucchini



- Take a Zucchini you have at home and cut in half lengthwise.
- Using a spoon scoop the middle part which contains the seeds.
- Put them in a glass and rinse them well with water.
- Place the seeds in a warm, dry area, away from direct sunlight.
- Plant two to three seeds together in a loose growing medium about 2.5cm deep.
- Place it in a bright location, while keeping the soil moist.
- Zucchini, similar to pumpkins, like warmth. Therefore, creating a little hill for the seeds helps the seeds to germinate faster.
- Seedlings should pop out after 7 to 14 days.
- When transplanting, make sure to space the seedlings about 60cm apart.
- Plant them in a sunny location and water regularly.

- The zucchini should be ready for harvest after about 55 days from sowing.



# Five Seed Starting Mistakes to Avoid

When starting plants from seeds here are some important points to take into consideration

- **Growing medium:** You can not directly plant seeds in heavy garden soil, because it is too compact. What you need is a light and fluffy soil made of 70% organic material (compost) which is called “growing medium”. Alternatively, it can also be coconut coir and perlite. The growing medium should be able to absorb excess moisture.
- **Watering:** Watering is all about balance. Under watering will not help your seeds to germinate and over watering could cause seeds to rot. For this reason, using the right growing medium is important. You want something that absorbs excess moisture while making sure that the soil is moist. Daily watering is recommended. Yet, before doing so, check the soil moisture and adjust the water quantity. Use a spray bottle or a watering can to water the seeds. It is gentle and will not force the seeds deeper into the soil. Use clear plastic containers with a lid to create humidity for the seeds to germinate. This creates a greenhouse effect and retains the humidity in the container.
- **Light and heat:** Keep the seedlings in a sunny location. Heat and light helps the seedlings to germinate and grow strong and healthy.
- **Wind:** If the seedlings are becoming thin and weak make sure that there is a light breeze by placing them in a sunny spot outside or ensure air movement so that the stems become stronger.

# Growing Plants from a Cutting

## Tomatoes



- Cut off a big sucker (growth coming out between the main stem and a branch) while making sure you don't cut a sucker that has fruits or flowers.
- Remove any extra growth making sure to only leave 3 to 4 leaves on top of the stem.
- Put the stem in filtered water submerging the stem deep in the water.
- Keep away from direct sunlight for a couple of days then place it next to a window in the sun.
- Change the water every 2 to 3 days.
- It takes about a month for roots to develop from a cutting.
- Plant the newly rooted stem in soil and water. Make sure that the stem is healthy and free from rot or fungus before planting.
- Water regularly making sure that the soil never dry up for at least one month.



## Sage



## Basil



## Rosemary



## Thyme



## Mint



## Cilantro

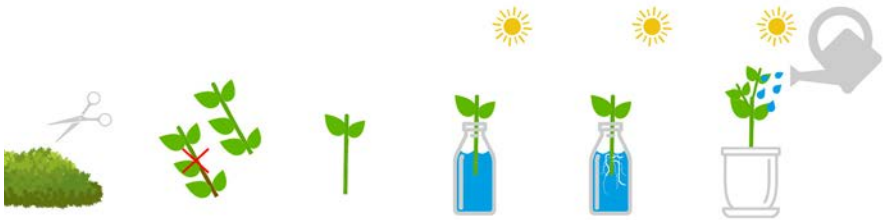


- Simply take a cutting from the plant, cut the bottom at 45 degrees.
- Remove the lower leaves of the cutting.

- Place the cutting in filtered water.
- In two weeks, root would have developed and you can transplant into a pot or into open soil.

Notes:

- For mint make sure to plant it in a pot or in contained area, as it is a pioneering species and could overgrow other plants.
- For rosemary and thyme make sure to use a green branch as a cutting (avoid woody ones).
- Sage takes about a month to develop roots.



# Microgreens:



Microgreens are fast and easy to grow and are rich in nutrients. You can use them in salads, soups or sandwiches. They include:

- Sunflower
- Pea shoots
- Radish, beet
- Broccoli, cauliflower, cabbage
- Cress, arugula, chives, cilantro

When planting any of the above prepare a recycled plastic container with growing medium. Use a mix of 70% organic material (compost) and 30% soil. Alternatively, you can use coconut coir

## Steps for growing sunflower microgreen - 10 days

- Soak the sunflower seeds for 24 hrs in a glass of water.
- Add the seeds on top of the growing medium and spread evenly. Make sure that the surface is even and flat.
- Do not cover the seeds with growing medium. Cover the seeds with another container or cardboard to block the light and add weight on top.
- After 2 days remove the top container.
- Water every other day with a spray bottle.
- After 7 days you can cut the greens (7cm from top) with scissors or a knife.



## Steps for growing pea shoots microgreen - 10 days

- Soak the seeds in a glass of water for 24 hrs.
- Add the seeds on top of the growing medium and spread evenly.
- Add growing medium on top of the seeds.
- Make sure that the surface is even and flat and water sufficiently.
- Water every other day with a spray bottle.
- After 7 days you can cut the greens ( 10cm from top) with scissors or a knife.



## Steps for grow radish microgreens - 6 days

- Sprinkle the seeds on top of the growing medium and spread evenly, making sure to leave some space between the seeds.
- Add growing medium on top of the seeds.
- Make sure that the surface is even and flat and water sufficiently.
- Water every other day with a spray bottle.
- After 6 days you can cut the greens (5cm from top) with scissors or a knife.





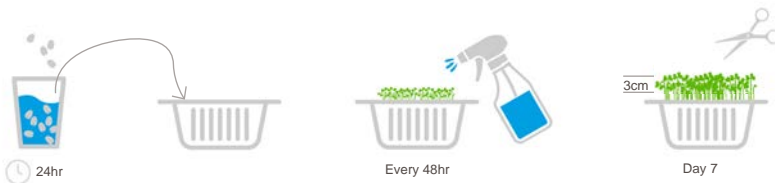
## Steps for growing broccoli microgreens - 8 days

- Add the seeds on top of the growing medium and spread evenly.
- Do not cover the seeds with growing medium. Cover the seeds with another container or cardboard to block the light and add weight on top.
- After 2 days remove the top container.
- Water every other day with spray bottle.
- After 6 days you can cut the greens ( 5cm from top) with scissors or a knife.



## Steps for growing cress microgreens - 7 days

- Soak the cress seeds in a glass of water for 24 hrs.
- Add the seeds on top of the growing medium within their jell like liquid and spread evenly.
- Do not cover the seeds with growing medium.
- Water every other day with a spray bottle.
- After 6 days you can cut the greens (3cm from top) with scissors or a knife.



## Building a Wick System

To build your own wick system you will need the following:



Plastic  
bottle



Twine



Growing  
medium



Nutrient  
mix

Steps to assemble the wick system:

- Cut the bottle 10cm from the top.
- Create a whole in the cap using a screw driver or a knife. About 0.50cm or just enough for the twine to go through.
- Cut about 30cm of twine.
- Feed the piece of twine through the hole in the cap so you have 15 cm on each side.



- Fill the bottom of the bottle with a nutrient mix and water sufficiently (follow instructions on nutrient mix)

You can make your own mix by adding 1.8L of distilled water, 300g of water soluble fertilizer, 150g of Epsom salt, and 0.75g of Sodium Benzoate. If you are making your own mix make sure to wear a mask and gloves and to use a wooden spoon or stick to mix.

- Place the top part of the bottle upside down (cap facing down) the lower half of the twine submerging in liquid.

- Fill the upper part with growing medium. You can use a mix of 30% and 70% organic material (compost). As an alternatives you can use coconut coir, perlite, or peanut hulls. Making sure that the other side of the twine is in the growing medium.
- Add the seeds (up to 3 seeds) to the growing medium.



# Making your Own Compost

There are numerous benefits in making your own compost, which include:

- It is a great way to recycle food scraps.
- Compost is a natural way to recharge the soil with nutrients, thus enhancing the growth of plants.
- It reduces pollution.

To make the compost you only need a bucket, green and brown composting material.

Brown composting material is made of fallen brown leaves, straw and wood chips. It is rich in carbon dioxide(CO<sub>2</sub>).

Green composting material is made of lawn cutting and food scraps (only vegetable, legumes, and fruits). It is rich in nitrogen (N).



Bucket



Green materials



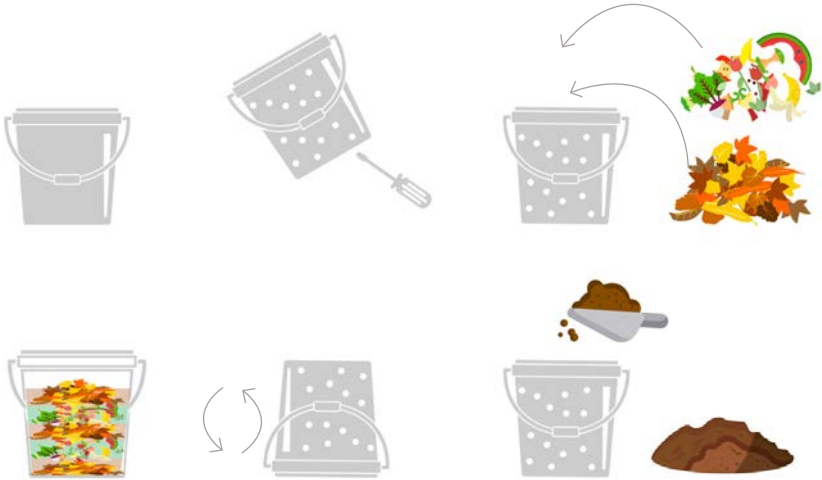
Brown materials

Steps to making compost:

- Take an available bucket (could be plastic, metal or wood) make holes for aeration.
- Layer the brown and green compost material like a lasagna making sure that the top and bottom layers are from the brown compost. Crush all compost into pieces for quicker composting.
- Place the bucket outdoors on soil in the shade. If the bucket is not full yet continue to add green and brown composting materials.
- Regularly flip the container to insure proper and faster

composting.

- The compost is ready once its brown, has a soil like texture and its size is reduced to 1/3 of the original size.
- Ideally, always work with 2 buckets, to fill one with compost material while the other composts.



## Recycled Items Used in Home Gardening

There are a number of items that can be recycled and used in home gardening.

Items that can be re-purposed and used to grow seeds:



Empty toilet/  
paper roll



Egg tray



Egg  
shells



Yogurt  
cups



Plastic  
containers

Toilet and paper towel rolls are biodegradable. Therefore, once the seedlings have grown you can plant them directly with the toilet or paper roll. For paper towel rolls cut the roll into four pieces so that the roll is not too long.

Egg shells are also biodegradable and you can plant the seedling with the shell. However, before you do, softly break the shell without hurting the seedlings.

When using egg trays use the plastic ones. The carton egg trays don't work very well as they absorb moisture. If the plastic egg tray is transparent you can cover the seedlings for the first few days to create a greenhouse effect.

The same applies to other transparent plastic containers. You can close the lid to create a moist green house like atmosphere for the first few days. And remember that Plastic containers and yogurt cups can be reused over and over to start seedlings.

Recycled items that can be used as planters:



Plastic  
bottle



Old  
barrels



Tin cans

When using any container as pots or raised planters make sure to make holes at the bottom to allow excess water to escape.

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