

Vegetable Gardening in Containers

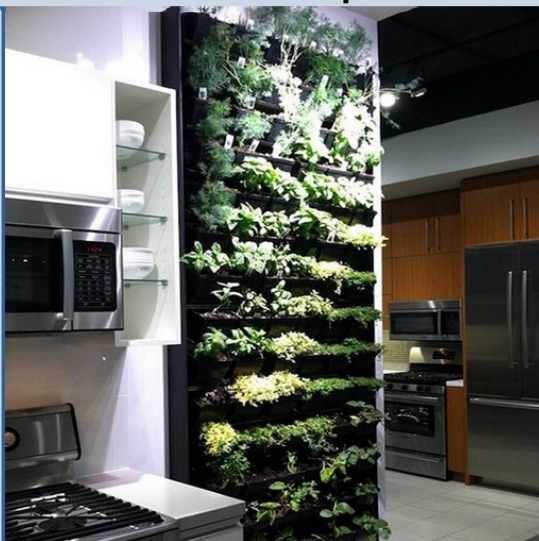
There's Place in the smallest Space

Growing vegetables in containers

- has no size restrictions
- a balcony is good too
- can be done indoors

Has additional advantages

- needs little soil & water
- uses containers from
 - upcycling
 - the dumpsite



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Where to Put a Container Garden

- The beauty of a container garden is that it can be placed almost anywhere. Even if it's only one or two pots on the side of your driveway or in the corner of your balcony, gardening in containers allows you to maximize all of your available space.
- If you have sufficient light indoors they can even be placed i.e. on a window sill.
- Just as with a standard garden bed, consider things such as sunlight exposure, water accessibility, and protection from wind when deciding where to put your containers.
- To maximize your veggie harvest, you'll want to place your pots in an area that gets full sun (i.e., 6 to 8 hours of sunlight per day). Lettuce, spinach, and other greens can grow well in less sunlight (3 to 5 hours per day), but for fruiting plants like tomatoes, peppers, squash, or eggplant, full sun should be the goal.
- Protecting containers from direct wind keeps them from drying out as much and prevents accidental tipping over.
- Depending on the size of your containers and the plants you're growing, they may get top-heavy as the season goes on, which makes them more vulnerable to tipping over, So plan to secure them (e.g., with cinderblocks, stones, or ropes).

Vegetable Gardening in Containers

What grows in containers

Broccoli	Carrot
Cucumber	Eggplant
Green Bean	Green Onion
Leaf Lettuce	Parsley
Pepper	Radish
Spinach	Squash
Tomato	Turnip



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Suggested Container Grown Vegetables

- | | |
|----------------|--|
| *Name | (Suggested Container Size, Number of Plants) |
| · Broccoli | (10 litre, 1 plant) |
| · Carrot | (5 litre, 2-3 plants. Use pots 2 inch deeper than the carrot length) |
| · Cucumber | (5 litre, 1 plant) |
| · Eggplant | (1 tyre, 1 plant) |
| · Green Bean | (10 litre minimum, space plants 3 inches apart) |
| · Green Onion | (5 litre, 3-5 plants) |
| · Leaf Lettuce | (5 litre, 2 plants) |
| · Parsley | (5 litre, 3 plants) |
| · Pepper | (1 tyre, 1-2 plants) |
| · Radish | (5 litre, 3 plants) |
| · Spinach | (5 litre, 2 plants) |
| · Squash | (1 tyre, 1 plant) |
| · Tomato | (1 tyre, 1 plant) |
| · Turnip | (10 litre, 2 plants) |

<https://agrillifeextension.tamu.edu/solutions/container-gardening/>

NOTE 1:

With regular watering and fertilising smaller containers can be used too!

NOTE 2:

Herbs will do with smaller containers throughout. And some herbs don't even require extra fertilising.

Vegetable Gardening in Containers

Soil for Containers

Do not use soil from the garden! Its too heavy.
Plants in containers need
→ best possible nutrients,
→ aeration & drainage
If garden soil is all you got
→ got compost (humus)?
→→ mix that in
Humus is a fantastic material
→ plenty of nutrients
→ loosens the media (soil).



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Soil for Containers

- In order to grow healthy plants, you need healthy soil. Plants in containers need the best possible nutrients, aeration, and drainage in order to encourage healthy root growth and to produce a good harvest.
- Do not use soil from the garden! Most garden soils are too heavy, can become easily waterlogged and compacted, and harbor disease and insects.
- Instead, use a “soilless” potting mix that’s specifically formulated for use in containers. It will be quick-draining and lightweight, and shouldn’t contain any diseases or pests.
- Got compost? Humus is a fantastic material to add to your container mix, as it contains plenty of nutrients and loosens the media.

Vegetable Gardening in Containers

How to Water Containers

- Containers dry out quickly
- water up to 2x a day
- water deeply - plants need water at their roots
- water till it runs out at the bottom of pot
- MAKE YOUR OWN can
- from a plastic bottle
- OR
- alter spout of can
- DEFINETLY
- skip the hose pipe!



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How to Water Containers

- Because they are more exposed to sun and wind, containers tend to dry out more quickly than traditional gardens or raised beds. Especially during the hottest days of summer, many plants grown in pots must be watered as often as twice a day!
- Water in the morning (or as early as possible). Watering early in the day provides plants with enough moisture to get them through the hotter midday hours. It also ensures that their leaves dry off by the time that night falls; having moisture on leaves at night can encourage the spread of disease.
- Water deeply. Plants need water at their roots, so simply spraying the surface of the soil with the hose isn't enough. Water plants—especially those in containers—deeply and thoroughly to ensure that water reaches down to their roots. After a watering, the soil should be saturated and water should run out the bottom of the pot.
- Alternatively, try watering from the bottom: Place a tray under the pot and fill it with water. The soil will absorb the water through the drainage hole(s). Repeat until no more water is absorbed, then dump out any excess water from the tray.
- Don't water too frequently! It may sound counterintuitive, but watering a plant with a small amount of water very frequently is worse than watering with a large amount infrequently. Frequent, shallow waterings encourage plants to develop weak, shallow roots, while infrequent, deep waterings encourage them to put down deeper, healthier roots. Most plants can tolerate—and actually benefit from—having a little break between deep waterings, so don't be afraid to let the soil dry out a little bit between waterings.

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Liquid fertilizer is best

Make your own Fertilizer Tea
→ throw chopped weeds into a bucket until half full
→ add water [if your water is chlorinated let stand in the sun for 2 days before adding]
→ cover bucket & let stand for up to 2 weeks
→ filter liquid out (solids go on compost)
→ water plant at root or spray on leaves with spray bottle



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Making Fertilizer Tea

- Next time you are weeding the garden, throw chopped weeds into a bucket or trash can, chopping them up as you go.
- When the container is about half full, fill it with water. Don't use chlorinated water; rainwater is the best (also free!).
- Screen the top to keep mosquitoes out. You can use a piece of screening or row cover.
- Stir daily for 3 days to 2 weeks. Or, pour it from one bucket into another to mix things up and keep it aerated.
- Strain off the liquid to use as a fertilizer or foliar spray. After you strain off the liquid, return the solids to your compost pile. It can be diluted or used full strength on established plants. Since plant leaves tend to absorb more nutrients more quickly than roots, foliar feeding is an efficient way to fertilize versus a soil drench.

TIP:

WORM JUICE

Further down a worm farm is described. The leach or worm juice is very versatile as it can be used as fertiliser or organic pesticide, depending on the dilution you make for each purpose.

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Start small

Start small with

- plastic cups from dairy product containers
- any type of tin cans

MOST IMPORTANT

- make a small hole in the bottom of every container to avoid water log



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Plastic dairy cups:

- I use these for growing my seedlings from seeds and then transplant the strong ones to the vegi bed.
- Advantage is that you need minimal amount of water in the phase where you do not know if the seed germinates or not.
- Used this at school gardens too. The learners took home 2 or 3 cups with seeds and had to look after them until the seedlings were about 5cm high. This gave the learners a sense of responsibility and helped them 'growing green fingers'.
- Leafy salads can be grown to harvesting stage in these cups, they do need more care though (water & fertiliser).

Tin Cans:

- Ideal for the indoor herb garden on the window sill. AND no need to go into the garden when you need just a few herbs for cooking

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Go bigger with small

Use a transport palette
→ place your plastic cups or tin cans inside the palette
→ place them as close together as the grown plant will require space

IMPORTANT

→ secure the palette against a wall or fence to avoid falling over



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Transport crates:

- are easy to get, some logistics companies even give them for free.
- They do though need minor modifications: with planks from a second palette you have to insert shelves for the cups to stand on.
- And when the wood gets too rotten after time, they can still work as fire wood

NOTE: put the palette in a place where it does not matter that run-off water comes to the surface they are standing on.

REMEMBER: every planting container, large or small, needs a hole in the bottom to let excess water run off.

Vegetable Gardening in Containers

Go medium

While cans & tins have space anywhere, these need a bit more:

- any type of 5ltr or more plastic cans
- any type of PET bottles

IMPORTANT

- place them where they cannot fall over



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Plastic Containers:

This in my opinion is the best option for a miniature garden or even a bigger one where the soil is not suitable for direct planting.

· Another advantage is that the containers can be moved around where extreme weather conditions require it, i.e.

→ out of the hot summer sun

→ close to a wall when frost occurs in winter

→ and for perennial plants easy to cover with a suitable cloth for over-wintering

AND ... its all upcycling!

Vegetable Gardening in Containers

Go high with medium

It needs a bit of space but not as much as a typical garden:

- build a rack or frame of any material available
- wooden planks
- wooden poles
- strong bamboo or cane

Attach the PET bottles in rows above each other



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The Vertical Bottle Garden

This is for the serious gardener with little space!

AND an ideal way of upcycling PET bottles which swamp the dumpsites of our countries.

NOTE: do not make the frame too high else you would need a ladder for watering.

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If you tend to forget watering ...

Use 2ltr PET bottles

→ cut them in half so that the cap reaches the bottom of bottle when flipped upside down

→ make a hole in the cap

→ fill soil and plant

→ fill with water until bottle neck is in the water

IDEAL FOR

→ herbs & leafy salads

AND ... INDOORS



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PET Bottle with Water Reservoir:

I stumbled over this idea only now and have not tried it yet.

But since herbs grown on our balcony regularly die as we forget to water them, this is definitely going to be tested in the upcoming season.

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... for the small garden

You have a small garden & maybe bad soil?

How about bags of all types and sizes

→ hessian bags

[farmers have loads of them]

→ strong paper bags

[i.e. baking flower bags]

→ plastic (shopping) bags

[or any other plastic bag not recycled]

All of these work well!



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Planting in bags:

- There are special planting bags sold in nurseries, but they are money wasted as they have no advantage over the array of 'normal' plastic bags that collect in each household.

- If needed normal 'black bags' available in every grocery store do suffice too.

As for the heavy duty paper bags – do NOT use old cement bags!

- But the paper bags in which baking flower is sold is ideal, specifically those of the 5kg and 10kg packages.

Shopping bags are getting scarce nowadays.

- When you buy small plastic bags for the purpose of planting, choose transparent ones as you can observe the conditions in the soil better.

→ AND ... its definitely cheaper than buying plant pots

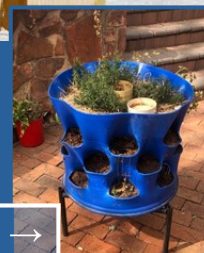
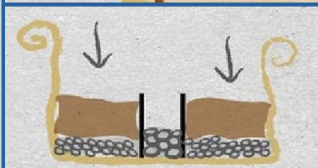
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How to make...

... a bag garden from large bags ... you need

- a piece of drainage pipe
- some coarse gravel or stones
- soil suitable for containers
- put the drainage pipe in the middle
- fill a layer of gravel
- fill soil
- pull out pipe

ALWAYS water in the middle



modern hitec version →



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Large Bag Garden ...

made with the large hessian bags that garden soil, many fertilisers and minerals needed for cattle farming are coming in make ideal small size gardens.

- Important is the correct set-up with the 'chimney' filled to the top with gravel / small stones in the middle. Watering only via this 'chimney' ensures that the water goes all the way down the bag.
- Depending on the plants you grow, you can even put seedlings into small holes you make into the sides of the bag all around.

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More for bad soil

You have the garden but the soil is 'useless'?

How about getting any kind of container from the dumpsite?

→ toilet pots, wash basins

→ old tyres [line these with black bags to avoid water loss, make small hole in it]

→ bath tubs, washing machines, or any other

→ bottles mentioned above

All of these work well!



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In a typical urban landfill site you will find all your needs for planting containers covered.

I have over time used:

→ the drum of a front-loader washing machine

→ a top-loader washing machine

→ pots and basins from bathrooms

→ tyres of all sizes

→ large plastic drums open at the top

→→ NOTE: check that the original contents of these was not a hazardous product!

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More on tyres

Growing potatoes:

→ plant your seed potatoes in first tyre

→ as the green comes out, add another tyre and soil

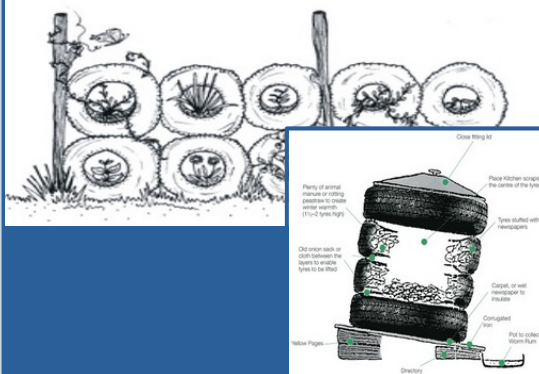
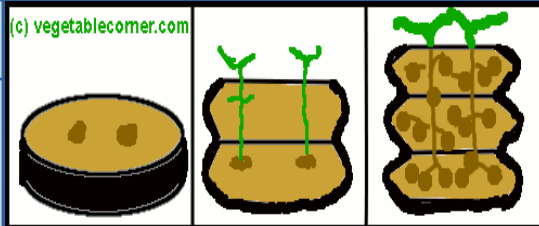
→ to harvest simply lift off one tyre after the other

OR

make your green tyre fence

OR

set up your own worm farm



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Growing potatoes needs piling up of soil over the greens that come out. This can be real easy with tyres. And harvesting even easier!

Worm Farm:

- You set up the first tire onto a slightly sloping corrugated metal roof sheet, which will direct the liquid run off into a container for you to collect the worm tea/juice. When the worms are well established and the compost has more or less filled the first tire, add a second tire above the first. It is less messy in the long run if, at this point, you separate the two layers with a piece of shade netting or even a well perforated plastic sheet, which will allow the upward migration of the worms and some ventilation. To improve the air flow, you can place a few thin slats or rods to open a few small air gaps between the two tires. After this you just continue as before, adding tires above.
- The worms would be most active in the upper feeding layer and migrate upwards towards that source.
- Do not build up too many layers of tyres as occasionally the worm compost would need to be collected by pulling the bottom tire horizontally out of the stack, which with a little effort can be done without disturbing too many worms. You'd have to be strong for this, or use a bar for leverage, as car tires full of damp worm castings are not light!
- The beauty of this system is that it costs next to nothing and it is easy to expand the scale of the operation, by bringing in more old tires to put up multiple banks of individual worm farms – as many as desired. Admittedly, the stacks of tires would be a bit unsightly in a suburban home, but this system would be an excellent addition to any school feeding garden in a poor community.

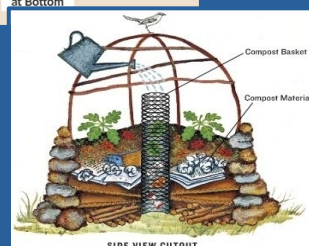
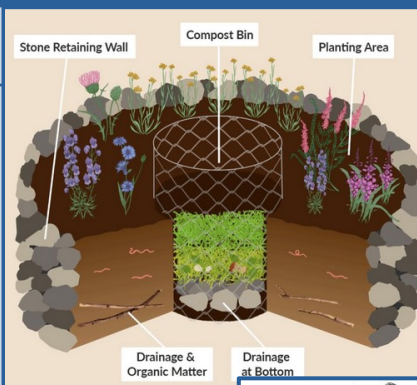
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African Keyhole Garden

Ideal for hot climates, retain moisture & supply nutrients

Building material:

- stones, bricks, clay or palette wood (like ours)
- the compost bin can be chicken wire or wood poles (droppers) or a combination of both
- for sandy soils a plastic lining is advisable
- layer soil build-up



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The African Keyhole Garden:

→ is a raised garden bed built from organic materials layered in a circle between six and eight feet wide. In the centre of the circle, a composting well funnels nutrients from food waste into the nearby soil. Plant roots take up these nutrients and reward you with lush growth and an abundant harvest.

Keyhole because a keyhole garden is a round raised bed with a pie-slice cutout for access to a composting basket in the centre. The bed is filled with rocks, yard waste, decomposable plant material, and a thick layer of soil/compost on the top for planting.

Building materials for a keyhole garden can be sourced from dumpsites or transport companies (palettes) for free or with minor costs involved.

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More on Keyhole Garden

How does it work?

→ in moderate climates only water the compost bin, plants get moisture and fertiliser

→ for dry climates full watering is needed, including compost bin

→ put plants that need a lot of fertiliser to the middle

top pic: my garden in spring

bottom pic: same today

→ netting is bird protection



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Watering:

In moderate climate conditions such as in Central African countries watering into the basket disperses moisture and nutrients throughout the keyhole. This efficient raised bed method of gardening is often used in areas with poor soil unsuitable for growing vegetables.

We in Namibia though need to water the whole area of the keyhole garden due to our dry, hot winds.

Planting:

Locate plants that require a lot of fertiliser towards the centre of the keyhole garden.

Otherwise you can plant at random, section in circles or pie slices.

Trellis over the composting basket allow to grow vining cucumbers or pole beans from within the compost bin.

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And finally something on how it all starts

Sowing your seeds randomly is not effective as
→ you use a lot of water without knowing if a seedling comes SO...
...use egg boxes OR...
...use egg shells in egg boxes
→ makes transplanting easy
→ crush the egg shells in the new container [shells work as fertilizer]



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If you want to be water-wise in your vegi garden too here is a way to save a lot of water in the seeding stage of your garden bed.

- Instead of sowing randomly over the bed and having to water everything, irrespective of which seeds might germinate and which not, use →
- egg cartons or trays and when it comes to transplanting just cut the tray apart and put the seedling into the ground with the carton which will rot away quickly.

OR →

- in the kitchen cut your eggs open carefully to keep as much of it in one part as possible
- in these 'eggshell cups' you plant your seedlings
- when it comes to transplanting just take the whole egg and place in into the vegi bed. In the last moment just crush the eggshell which will serve as additional fertiliser.

TIP:

If you plant small amounts of seeds of various plants only, use an egg carton add in the lid write down what type of seed is where.

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Thank you for your attention

Compiled by Wolfgang
Rotary Club Windhoek

If you have any questions feel
free to contact me by email:

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For the list of sources please see the
NOTES of this page.

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*attitude...
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