

We all need fresh vegetables in our diet to be healthy. Sometimes, growing them ourselves is the only way we can afford to eat them regularly. "But", you say, "I live in the city. I don't have space to grow vegetables." Well, just because you live in a city doesn't mean you can't have a garden. You don't need a lot of space or land. This action sheet is about clever space-saving ways to grow more vegetables in city gardens. Trench, tire, and basket gardens - all these methods recycle organic waste, helping to keep the environment safe and clean for everyone.

Trench gardening – A way to plant vegetable crops in poor soils

1. Start collecting organic waste (e.g. dead cabbage leaves, carrot tops, yam, cassava, plantain, potato or other peelings, crumpled paper, dead leaves, old cow dung and droppings from chicken, cows and goats (not fresh), wood ash, eggshells, dead plants and flowers, tea and coffee bags, bones, feathers, maize stalks and cobs. Don't use glass, plastic and nylon, which is not organic waste, so it will not break down to feed the soil.

2. Dig a long trench to fit your outdoor space, about half a metre deep. Make sure that you choose a position that will get plenty of sun. At the bottom of the trench, crack the soil to a depth of another 30cm to help let air in and water soak through. Put the darker topsoil at one corner and the subsoil at the opposite corner.



3. Half-fill the trench with your organic waste. Tear or break the rubbish up into smaller pieces and mix it up to help it rot quickly. Put bigger bits of rubbish at the bottom. Add some water and press it down well.



4. Put the sub-soil back in, and then the topsoil on the top. The top of the bed should be about 100 mm above ground level, because as the rubbish rots the level will drop. Rake the top-soil to make it smooth with no lumps.



5. You can plant immediately after preparing the bed.

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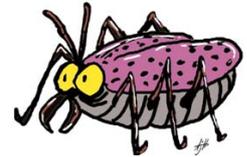
6. Part the mulch with your hands to make rows for planting seeds or seedlings. Most vegetables can be planted in rows 200 mm apart. Bigger plants like cabbage and bush beans must be planted about 300 mm apart. When planting seeds make shallow furrows in the soil in the partings with your finger or a stick. Make the rows across the bed, not lengthwise. Plant the seeds carefully - not too close together. Fine seeds should be planted about 10 mm deep while larger seeds like spinach must be planted a little deeper. Big seeds like beans and peas must be planted about 25 mm deep. Do not allow the mulch to cover the rows of seeds as they will need light to grow when the young shoots break through the surface of the soil.

Planting potatoes in a trench garden: Plant seed potatoes every 30cm before putting the old manure in. After two months, each potato plant will produce one or two potatoe(tubers) per week. Two months later, you will need to refill the trench and replant again with potatoes, to keep a steady supply.

By feeding the soil with organic waste, you can grow vegetables to feed your family!



It's good news when you find big fat worms and beetles crawling everywhere. All the food in the trench is attracting insects and worms, and together they will make the soil soft and full of air and water.



Tyre gardens - Try gardening in old tyres!

The best thing about tyre gardens is that you can set them up and move them jjust about anywhere. You can garden on a cement patio, on flat rock, on a rooftop, on a steep hillside, even on the roots under a tree. Maybe you can set up your tyre garden there. All you will need to start are several old tyres, some plastic sheets, soil or growing mix, and seeds or seedlings to plant. The number and size of tyres you use depends on how big a garden you wish to have.

A tyre garden is easy to make. You can cut off the top rim of the tyre for a wider space to garden or you can garden in the tyre without cutting it at all.

To cut the rim, lay a tyre flat on the ground. The rim is the whole top section from the side to the hole in the centre. Notice that the top rim and bottom rim are exactly the same size. With a knife or machete, cut off the top rim. You can prevent the knife from sticking by pouring a small trickle of water on the rubber jjust behind the knife.

Next, place a piece of plastic such as a garbage bag inside the tyre over the bottom rim. The plastic should be large enough so that it covers the bottom of the tyre and one or two inches stand up along the walls. Now turn the top rim that has been cut off upside down and press it in against the bottom rim. It will fit tightly and hold the plastic in place. If you have not cut the rim, use a few stones or gravel to hold the plastic in place on the bottom of the tyre.

The plastic sheet in the bottom of the tyre helps your garden in two ways. It holds water at the bottom of your garden so your soil does not completely dry out. Any extra water can seep between the plastic and the side of the tyre, then out through the bottom. You may want to cut one or two extra small holes in the bottom rim for extra drainage. Plastic also prevents tree roots from growing up into the tire garden. Now fill the tyre with good soil or compost. Make sure the soil is pushed well up against the walls of the tyre. Next, is to sow your seeds. If you are gardening on a cement patio or rooftop, you can place your tyre gardens on top of sticks, large stones, bricks, or cement blocks. This will let air blow beneath them and keep the patio or roof dry between waterings.



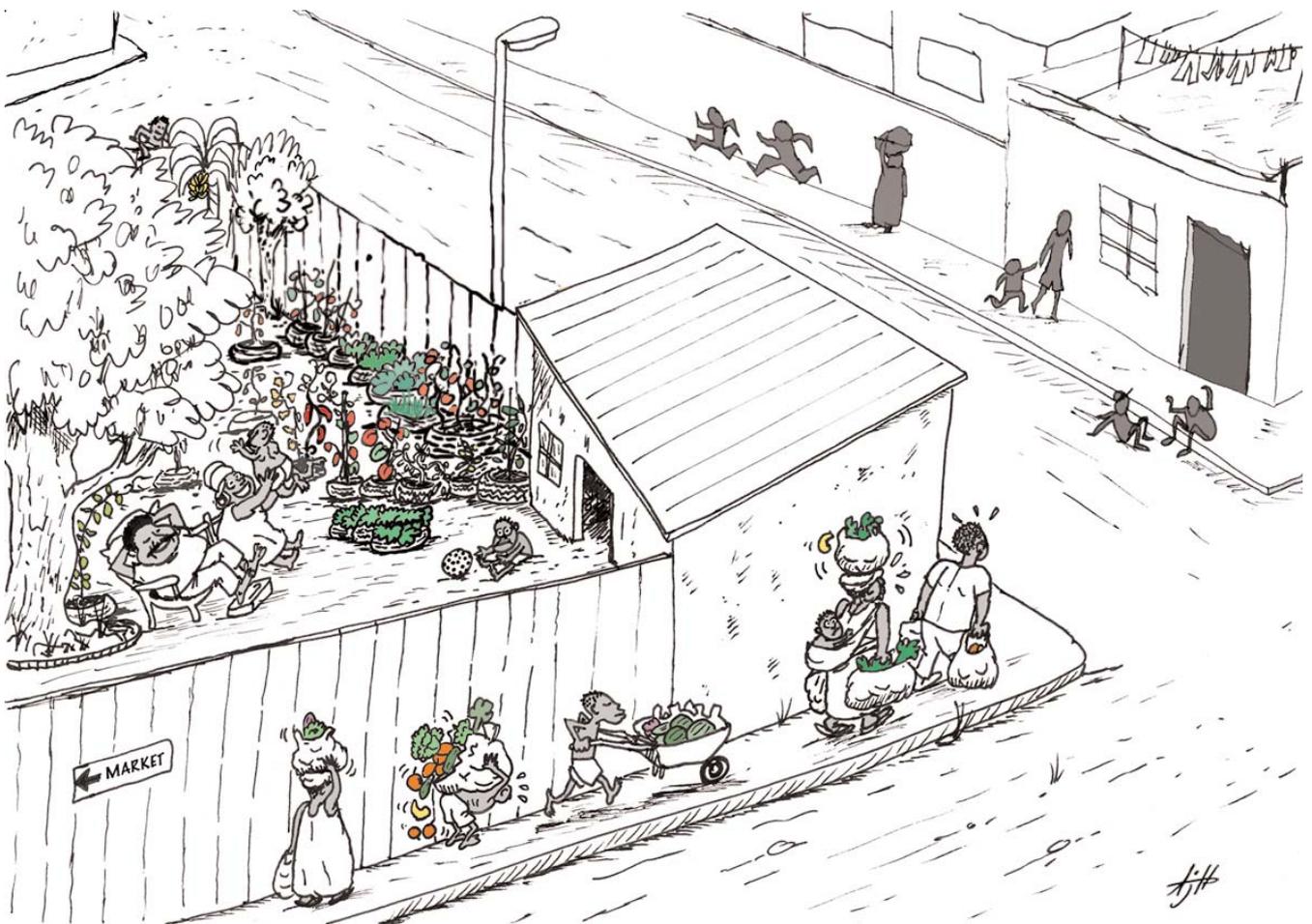
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Most vegetables and herbs grow well in tyre gardens as long as you water them regularly. People around the world have successfully grown carrots, onions, cabbages, spinach, tomatoes, lettuce and peppers. Consider what grows best in your area. If you find the plants are not growing well, you may need to add fertilizer to your garden.

Certain crops do not grow well in tyres. Trees are just too tall to grow properly. In the hottest, dry months, plants that need a lot of water such as sweet potatoes may not survive, even if you are watering them properly. Plants with big leaves that spread over a large area such as pumpkins probably need more soil than a tyre garden can hold, so you may want to avoid planting them. Some very tall plants, 1.5 metres or taller, may be hard to grow because they might tend to lean over and break. However, you could use sticks to support them. But there are no rules for tyre gardening. You can experiment with many types of plants. Perhaps you will discover some new methods for growing tall or difficult plants.

If you place your tyre gardens on a hillside, you can stop the tyres from slipping by placing rocks in front of them on the downhill side. Or you can drive a stake into the ground inside the tyre on the uphill side. If you make a row of at least two tyre gardens across, you can help stop the rains from washing good soil down the slope.

One way to check when and how much to water your garden is to place an empty flower pot, pipe, or coconut shell in the centre of the tyre. This container will collect water, when the water level in the container drops, it may be time to water.



It is a good idea to get some air into your soil. This way, you won't have to use as much soil, and your garden will be lighter. Add objects to the soil which have a lot of air space in the middle such as plastic bottles, sections of bamboo, or empty drink or food cans. First you should cut holes into the sides of bottles or cans so plant roots can get through. You can also try using pieces of coconut husks, a layer of coarse weeds or alfalfa hay which also provides extra nutrients to your soil.

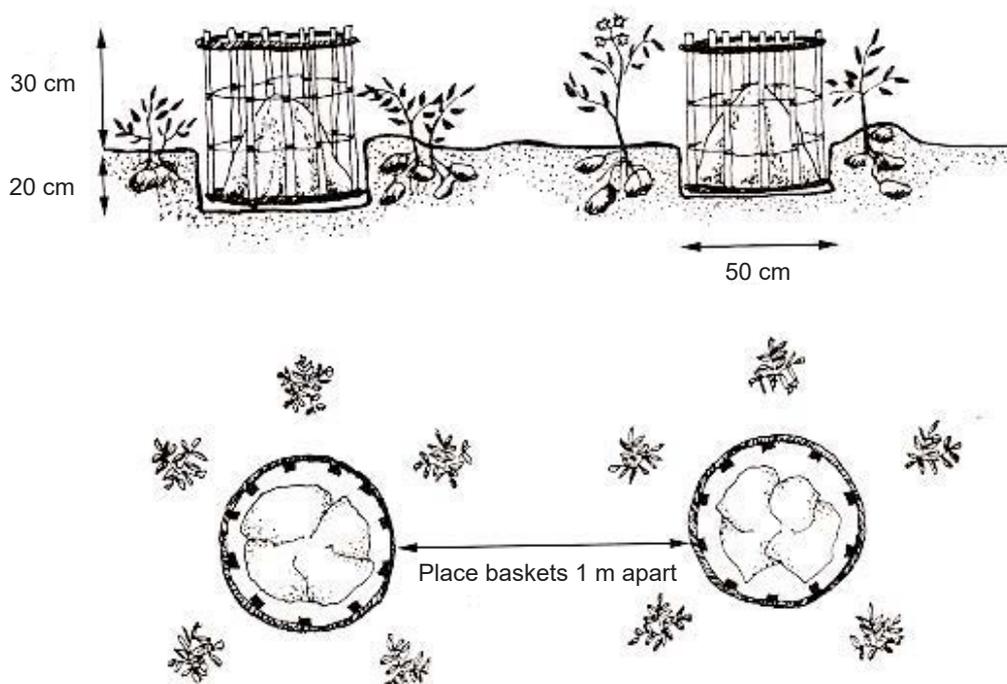
Every six months or after two crops have been planted, replace the soil mix in the tire completely with fresh compost and manure. It is possible to use the soil mix longer than this, but other tire gardeners have found that crop production goes down.

To prevent theft or damage by chickens, goats or other animals, place your tyre garden on top of something high enough to be out of their reach. Maybe you can think of a way to build a tall holder for your gardens so that four or five of them fit in small narrow space.

If you are growing a plant that requires shade at certain times, you can move the garden out of the sun. Even better, if you move to a new home, you can take your tyre garden with you. Now you can tell your neighbours "Look how easy it is to grow vegetables in the city!"

Basket gardens

Basket gardens use the abundant availability of organic waste to produce food. The technology uses cheap material: bottomless baskets, organic solid wastes, seeds and seedlings.



Here's how it works.

- Dig a 30 cm diameter hole in the ground.
- Place the bottomless basket on top of the hole.
- Put all the available organic solid waste inside the basket and the hole below it.
- Plant four to eight selected plants about 20 cm away from the basket. Water them as necessary.

After harvesting these plants, the composted waste in the baskets can be used to fertilize other garden activities (see Action Sheet 31: Practical Composting).

You can grow more food in your garden by building a series of 12 basket garden units, planted at intervals of 1-2 weeks. This way, after harvesting the first basket garden, you will be just in time to harvest the next one, and so on, so you will have a continuous supply of vegetables and fruits.

Caring for your vegetables

- Newly planted seeds must be watered gently and regularly for the first 10 days. After that water only 2 to 3 times a week. The soil must never dry out when the vegetables are growing - it must always be slightly wet.
- In summer water the garden late in the afternoon. In the colder months, never water your garden after 3 pm. A thorough soaking twice a week is better than a light surface watering every day. An old tin with fine holes in the bottom is an efficient way of watering especially for seeds and small plants. Dip the tin into a bucket of water and direct the spray exactly where it is required.
- When the plants are about 100 mm high spread mulch around them again.
- If you make four beds and start them 4 weeks apart, you will have fresh vegetables throughout the year. As soon as the vegetables have been harvested, replant with seeds or seedlings.
- A root crop (carrot, potato) should follow a leaf crop (spinach, cabbage) and a legume (pea, bean) should follow a root crop. Be sure to plant the right vegetables for your area each season. The Food Gardens Foundation provide a quarterly newsletter giving seed sowing guidance for each climatic region.

The best way to get started with vegetable growing?

Get in touch with people who already grow their own. If a group of community members get together and garden, the quantity of food grown can be increased substantially and everyone can benefit from the gardens. See Action Sheet 78 on Permaculture for more ideas.

Acknowledgements

This Action Sheet was compiled by Nancy Gladstone and is made up of edited extracts from the following sources: Envirofacts Leaflet: Growing Vegetables by Jocelyn Collins, Edited by Linda Biggs, Share-Net, South Africa www.botany.uwc.ac.za/Envfacts/facts/vegetables.htm

Farm Radio Package 60 Script 9 July 2001, The Mazubiko Trench Gardens, Contributed by: Karen Colvin, Vuleka Productions, South Africa Reviewed by: Raymond Auerbach, Director, Rainman Landcare Foundation, South Africa. www.farmradio.org/english/radio-scripts/60-9script_en.asp,

Farm Radio Package 41, Script 5, July 1996 Script 41 Gardening in tires researched and written by Belinda Bruce, a writer and editor in Toronto, Canada, reviewed by Daniel Sonkes, Educational Concerns for Hunger Organization (ECHO), Florida, USA, www.farmradio.org/english/radio-scripts/41-5script_en.asp

Micro-technologies for Congested Urban Centers in Ethiopia, by Yilma Getachew, Addis Ababa, Ethiopia; yilmaget@yahoo.com www.ruaf.org/no10/22_ethiopia.html

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Worm and Beetle cartoons by Alan Hesse

For more information

RUAF (Resource Centre on Urban Agriculture and Forestry)

Food and Trees for Africa – www.trees.org.za

www.cityfarmer.org and www.cityfarmer.info

www.foodgardensfoundation.org.za

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