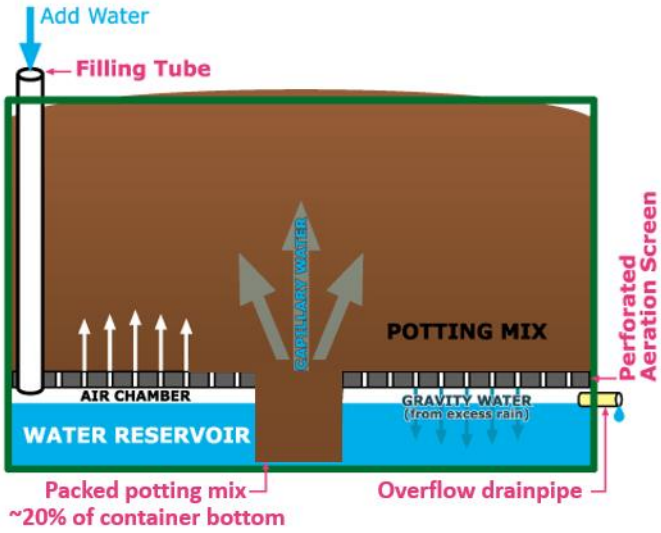
A Water-Saving Wicking Garden



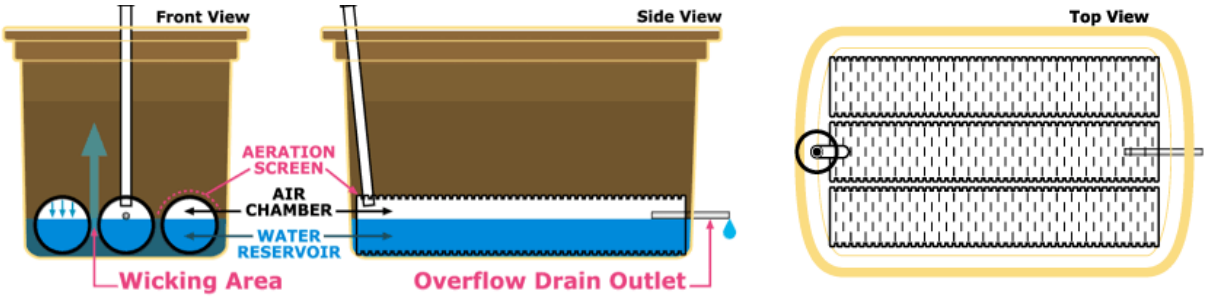
Wicking beds are a unique and increasingly popular way to grow vegetables. In this article, we'll deal with a simple container wicking barrel, however there are many variations in the types, sizes, and complexity of wicking containers—from 5 gallon buckets to large pond liner raised beds. We'll describe the wicking bed build using a 55-gallon barrel cut in half, but the principle works with most any container. Do some web searching, there is lots of information available.

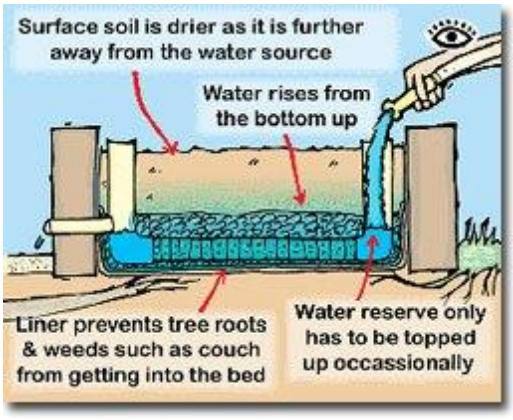
Wicking beds are self-contained garden beds with built–in reservoirs that supply water from the bottom up, while aerating your plants from below. The concept changes how, when, and how much you water your raised beds. The water moves from a reservoir at the bottom of the garden bed through the soil to the top, watering the roots of the plants from below. The water moves by "capillary action" – just like fuel moving up the wick of a kerosene lamp.

There are several advantages of wicking beds. First, they are water efficient. Watering from the bottom up prevents evaporation of surface water (which occurs when you water beds from the top). They use 40-50% less water than a conventional garden—even less if top mulched. When the plant wants water, it takes it; you can't over-water your plants. Wicking containers require less time spent watering because they water themselves – plants have less risk of over or under watering. It's also harder for weeds to establish and because we have so many trees and grasses with invasive roots here in the Texas hill country, they are ideal for gardens with trees with invasive roots. And finally, not only can they be made cheaply from recycled materials (although more complex expensive options exist), but the garden beds are also raised so they are easier to use by the elderly or people with an injury or disability.

All you need is a container that can contain water. It can be half a 55-gallon barrel, a cattle watering trough, a cattle feed mineral tub, a heavy duty plastic box, or an old bathtub–use your imagination. Then get some perforated sewer pipe, some sewer pipe sock material, some 1"

PVC for an inlet fill pipe, a short piece of ½" overflow PVC pipe (lengths will vary depending on size of container). Then we need some soil mix, compost, water, mulch, and some seeds, seedlings, or plants.

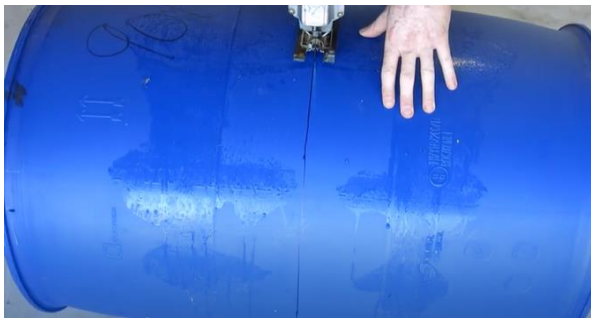




Wicking beds are not a universal gardening solution, and if we keep this in mind and use them where they perform best, we can best make use of the benefits while avoiding the disadvantages. Wicking beds, much like hydroponic systems, are best suited to growing annual vegetables, which are so short lived they don't live long enough to develop long term problems due to the soil conditions and require large amounts of nutrients in a short period. Raised bed gardening differs from in-ground gardening in that you must supply the raised-bedded plants the nutrients they need. However, since wicking beds retain fertilizer in the water reservoir, less fertilizer can be used for annual veggie growing.

Instructions:

1. Cut a food grade 55 gallon plastic barrel in half. This will make two wicking beds. Make sure the fill plugs in the top half have good washers and are tightly screwed in. You can also put some silicone on the threads then screw them in tight.



2. Three inches up from the bottom of the barrel drill a 5/8" hole. This is the overflow port. Since you'll

place 4” perforated sewer pipe inside the barrel, the 3” height allows for some air space above your water reservoir which aerates your plants from below.

3. Cut a 4” length of ½” irrigation tubing and wrap one end with some screen or shade cloth. The screening on the pipe is one of two precautions to take to protect against mosquitos invading your soon-to-be-made water reservoir. Then, insert the tubing halfway into the overflow hole. It can be inserted from the inside or outside—I prefer the screen inside.

4. Cut a piece of 1” PVC or HD plastic tube about 26” long. Cut one end square and a 45-degree bevel on the other end—so it will permit water to easily flow into your water reservoir.

5. Cut about a 7 foot length of 4” flexible, perforated sewer drainage pipe. Make sure the pipe is the perforated kind! Insert the sewer pipe into the drainage sock and tie off one end using a zip tie.

6. Cut a slot into the drainage tube near the end that has not been tied off and insert the beveled end of the water feeder tube into the slot and tie off that end with a zip tie.

7. Coil the 7 foot drainage tube in the bottom of the barrel making sure to keep an empty place in the center. The space in the center of the drainage tube—about 20% of the bottom area—is where you’ll tightly pack planting material that will act as a wick.

8. Fill the tub with good garden soil enriched with compost, peat moss, and perlite; making sure you tightly pack the soil to the open bottom area up to the top of the drainage pipe. The soil should be moist, but not wet. It's good to have lots of crumbly organic matter in the soil which helps with the wicking. Wicking will occur to about 12" to 18" above the height of the water reservoir, depending on the planting medium.

9. Put a hose into the water feeder tube and fill the container's reservoir until you see water running out of the ½" overflow tube. Let the barrel wick for 24 hours. Then fill again to top off the reservoir. Always stop filling as soon as water runs out of the overflow port.

10. Plant or seed your veggies. If seeding, you will need to surface water until germination occurs and plants are about 3" to 5" tall. Once seeds or transplants are planted and established, cover the soil's surface with straw for mulch.

11. Place a cap over the inlet pipe; it will serve as a barrier to undesirables setting up shop in your mosquito condominium. It is the second of two precautions to take to protect against mosquito infestation.

Planting mix: ¼ sandy & loamy planting soil, ¼ peat moss, ¼ *Black Kow* composted manure, ¼ perlite. ***Dr. Sunn's mix:*** 14 shovels of sandy & loamy planting soil, ½ bag of *Black Kow*, 5 gallon bucket of loosened peat moss, 3 gallon bucket of perlite; and when available, two shovels of Sunn's compost pile; mix & fill or top-off containers.

Sources:

- Sandy & loamy planting soil – Geosource
- Peat moss and *Black Kow* – Lowes
- Perlite – South Texas Growers

Wicking barrel, wicking tub videos:

https://www.youtube.com/watch?v=radHBan7-BI

https://www.youtube.com/watch?v=SlAOl995SaQ

https://www.youtube.com/watch?v=9guNoWP8_ls&t=632s

https://www.youtube.com/watch?v=k429cPlH6mM&t=163s

https://www.youtube.com/watch?v=E8aE9nd8D4s

https://www.youtube.com/watch?v=wGF72sOwgJI