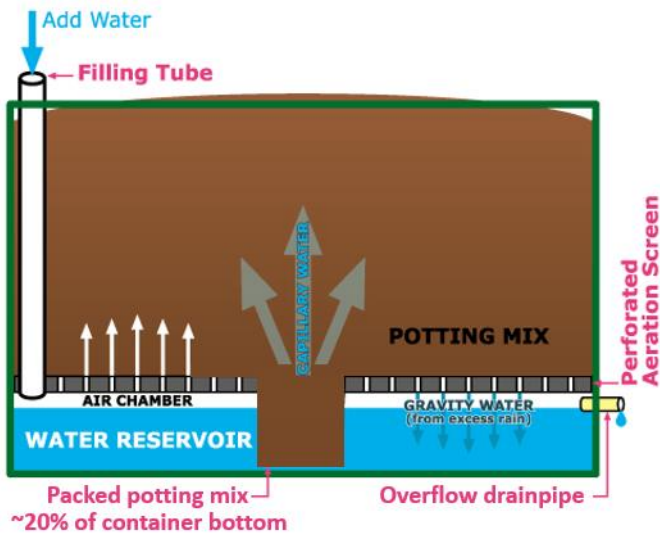


Wicking Gardens from a 55-Gallon Barrel



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.

Wicking beds are unique and an 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 an IBC tote to large pond liner raised beds. We’ll describe building the wicking bed 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



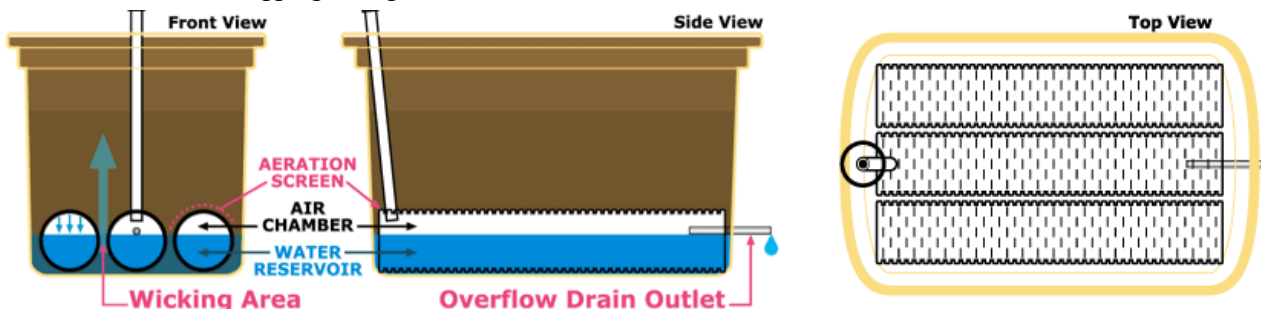
There are several advantages of wicking beds. First, they are water efficient. Watering from the bottom up prevents evaporation of surface water (which occurs when you water beds from the top). They use 40-50% less water than a conventional garden—even less if top mulched. When the plant wants water, 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 near 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.

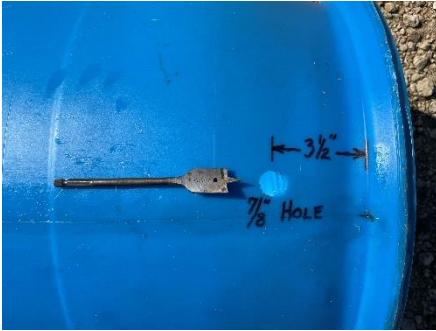


Wicking beds are not a universal gardening solution, and if we keep this in mind and use them where they perform best, we can make use of the benefits while avoiding the disadvantages. Wicking beds, much like hydroponic systems, are best suited to growing annual vegetables, which are so short lived they don’t live long enough to develop long term problems due to the soil conditions or 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 (bung holes) in the top half have good washers, or glued with PVC glue, and are tightly screwed in. Alternatively, you can put some silicone on the threads then screw them in tight.



2. Three and a half inches up from the bottom of the barrel drill a 7/8" hole. This is the overflow port. Since you'll place 4" perforated sewer pipe inside the barrel, the 3 1/2" height allows for some air space above your water reservoir which aerates your plants from below.



3. Cut a 3" length of 1/2" PVC pipe. Cut a 90-degree elbow in half so you will have two pieces to glue on either end of the 3" PVC pipe, but just glue one side. Zip-tie some screening material on the glued end of the 3" piece of pipe; it is the first 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 and glue the other elbow piece. The overflow pipe can be inserted from the inside



or outside—I prefer the screen outside so I can see if it needs replacing. CAUTION! When cutting the elbow in half, first place it on a length of PVC to keep your hands away from the saw. Cut the elbow SLOWLY or it will shatter.

4. Cut a fill pipe 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!

Cut about a xxx-foot relaxed length of sewer sock. Insert the sewer pipe into the drainage sock and tie off one end on the inside piece of the 3" PVC overflow pipe using a zip tie.



6. With a zip-tie, tie of the other end of the drainage sock around the angled end of the fill pipe

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 growing medium into the open bottom area up to the top of the

sewer pipe. The soil could be moist, but not wet. Tightly pack the soil in all the 4" void spaces around and between the perforated pipe then fill the rest of container with the growing medium. 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 or mulch.

11. Place a cap over the inlet pipe, and a piece of screen over the drainpipe; they serve as barriers to undesirables setting up shop in your unintended mosquito condominium. These are important precautions to take to protect against mosquitos.

Tools needed:

- Measuring tape
- Black marking pen
- Scrap piece of straight edge cardboard
- Sabre saw to cut the barrel
- Saw to cut PVC pipe
- Flat drill bit 7/8", sometimes referred to as a *spade* or *paddle* drill bit
- Razor knife

Materials list:

- 55 gallon food-grade barrel – any color
- Xx feet of 4" perforated flexible sewer pipe
- Xx linear feet of sewer pipe sock
- Four 10" zip ties
- One 3" piece of ½" PVC pipe
- A 90-degree ½" PVC elbow cut in half
- PVC cement
- Piece of 1" or larger PVC fill pipe, one end cut square, bottom end cut at 45-degree angle
- Cap for the top of the fill pipe, size is dependent on your fill pipe (mosquito protection on fill pipe)
- One 4" x 4" piece of window screen (mosquito protection on overflow pipe)
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Dr. Sunn's growing medium mix: In a wheelbarrow mix 14 shovels of sandy & loamy "garden soil"; 1 bag of *Black Kow*; a 5-gallon bucket of loosened peat moss; a 3-gallon bucket of perlite; and when available, 1 cup of Epsom salt; 2 cups of balanced 13-13-13 fertilizer; two shovels of compost (when available); and 2 cups of coffee grounds/powdered eggshell mix (helps stop blossom end rot in tomatoes, peppers, zucchini, and cucumbers—eggshells are dried in an oven, then mashed into small pieces, using a tenderizing hammer in a metal coffee can, and then they are pulverized in a coffee grinder and mixed with used, dried coffee grounds). All items are mixed in the wheelbarrow and then either fill or top-off my planting containers.

Sources:

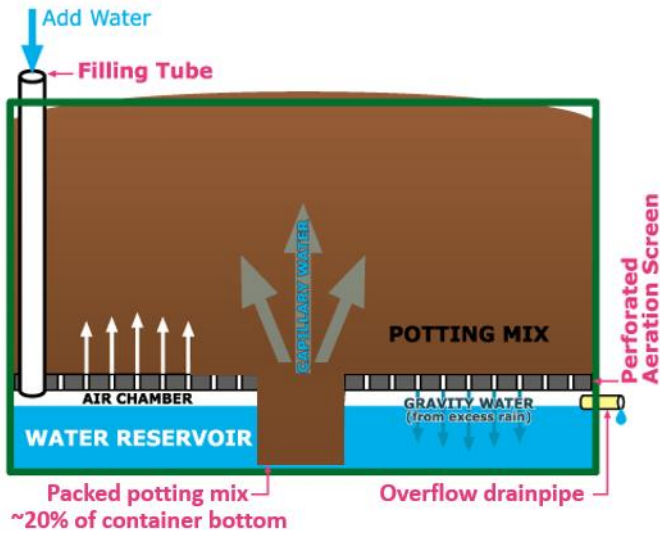
- Sandy & loamy "garden soil" – Geosource <https://geosourceinc.com/>
- Peat moss and *Black Kow* – Lowes <https://www.lowes.com/>
- Perlite – South Texas Growers <https://www.southtexasgrowers.com/>
- Epsom salt – Sam's Club <https://www.samsclub.com/>
- Balanced 13-13-13 fertilizer – Bulverde Feed & Seed <https://www.bulverdefeed.com/>
- Used coffee grounds – free at most any coffee shop or restaurant. <https://otgcoffee.com/>, <https://www.starbucks.com/>



Wicking barrel, wicking tub videos:

- <https://www.youtube.com/watch?v=radHBan7-BI>
- <https://www.youtube.com/watch?v=SIAOI995SaQ>
- https://www.youtube.com/watch?v=9guNoWP8_Is&t=632s
- <https://www.youtube.com/watch?v=k429cPIH6mM&t=163s>
- <https://www.youtube.com/watch?v=E8aE9nd8D4s>
- <https://www.youtube.com/watch?v=wGF72sOwgJI>

Wicking Garden Made from an IBC Tote



Wicking beds are unique and an increasingly popular way to grow vegetables. In this article, we'll deal with a simple container wicking IBC tote, 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 building the wicking bed using a 275 or 330 gallon IBC tote cut in half, but the principle works with most any container. Do some web searching, there is lots of information available.

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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.



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All you need is a container that can contain water. It can be half an IBC tote, a cattle watering trough, half of a 55 gallon barrel, 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 1/2" 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.

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