

Grow plants without a garden with a Sub-Irrigated Planter (SIP):

A SIP is any method of watering plants where the water is introduced from the bottom, allowing the water to soak upwards to the plant through capillary action. It is also possible to automate the watering using drip irrigation methods.

SIPs have been around for centuries and is sometimes erroneously referred to as self-irrigated planters. These days SIPs are available in big box stores as Planter Technology and EarthBox. Or as do-it-yourself projects made from plastic buckets and boxes.

This booklet is designed to help you build a SIP at home using simple tools.

You can grow almost anything including flowers for. But you can also create a nice vegetable garden and grow tomatoes, herbs, eggplants, zucchini, salad greens, collard greens, swiss chards, water melon, and peppers. The list is endless.

Your container garden will be more productive than vegetables grown in the soil or other drain hole planters.

There is no weed to pull or yard to till. No need for constant watering morning and evening. No fertilizer over runs into river system. It's efficient, productive and eco-friendly—all rolled into one.

Once you realize how efficient and productive SIP gardening is, every paved area, walk way, stairwell, and abandoned parking lot will look like a sustainable garden to you.

While the ideal growing season for a SIP garden in the north east is mid April through late October, you can always bring the container indoors and continue to reap your harvest.

With prices of LED grow lights becoming cheaper and cheaper, SIP gardening can sustain you indoors right through winter months with hardy cold season vegetables.

If you find these instructions useful or have questions or suggestions please email me at abovegroundfarming@gmail.com

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Caution: May cause neighbor's envy

There is always the choice of doing dirt gardening. Provided you have space for it, a farmer's almanac and lots of elbow grease. You can try gardening using drain hole planters.

But then there's a more efficient, more productive and rewarding sub-irrigated planter (SIP) gardening.

The advantages are many:

Needs very little space: A small space with sufficient sunlight would do nicely. It could be a rooftop, balcony, a deck, driveway, paved patio, or even a fire escape.

Needs little resources: Each container requires just two 5 gallon buckets, a 2 feet PVC pipe that's 1" in diameter, 1 disposable cup, under a cubic foot of container mix, 2 cups of organic fertilizer all of which are available at any hardware or garden store. For tomatoes, you will need 1 cup of hydrated lime.

Needs little attention: The system is self-regulating; you cannot over or under water the plant. Does not need monitoring the fertilizer level either.

More productive: SIPs will produce more food per square foot than in-ground gardening while conserving water and valuable time. This is safe food production with no exposure to contaminated city soil.

More eco-friendly: The buckets can be recycled from food grade oil or margarine buckets from restaurants or bakeries. They conserve water by keeping it contained in the planter. There are no fertilizer run offs into rivers and streams.

So let's get started and build a SIP.



Creating a Sub-Irrigated Planter (SIP)

You will need:

- Two 5-gallon food grade buckets
- 1 Lid for the bucket
- 1" diameter PVC tube 2 feet in length
- One 16 oz disposable drinking cup
- One cubic feet potting mix (not soil)
- Organic fertilizer (7-7-7 or 10-10-10) 2 cups
- If you are growing tomatoes you will need 1 cup hydrated lime
- 1 Black garbage bag

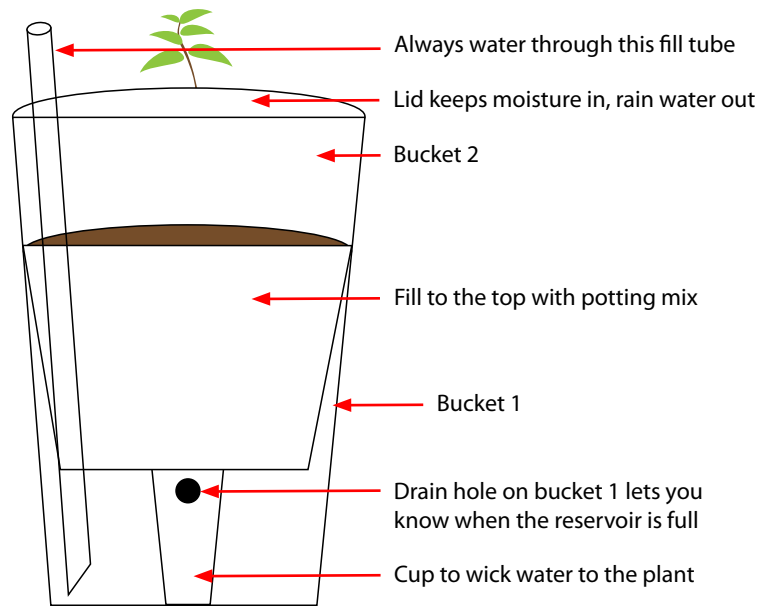
Tools:

- Drill (wired or cordless)
- 3.5" hole saw
- 1" hole saw
- 3/8" drill bit
- Scissors
- Box Cutter

Use caution when using power tools. read the manual and always wear safety goggles.

Cost:

- \$12-15. Cheaper if the buckets are on sale.

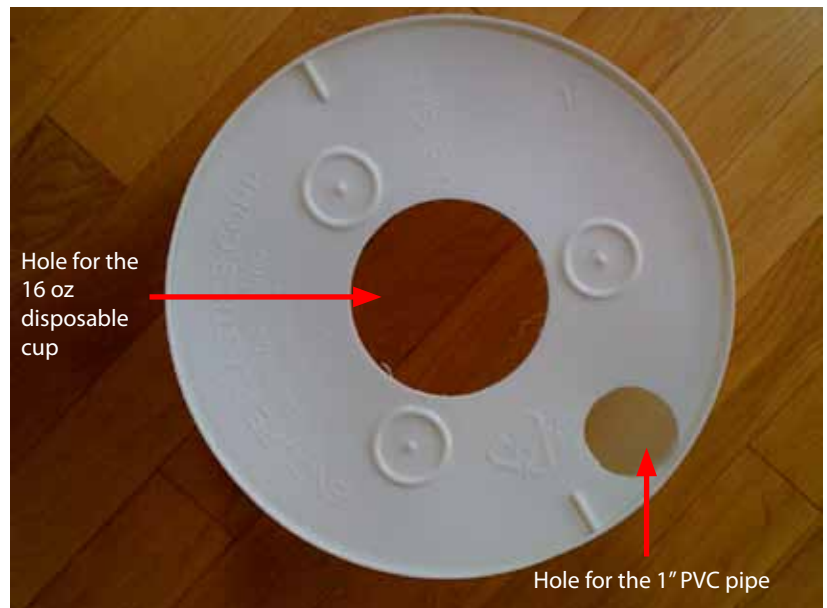


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Procedure:

Turn one bucket upside down. Using the hole saw drill a 3.5" hole in the center.

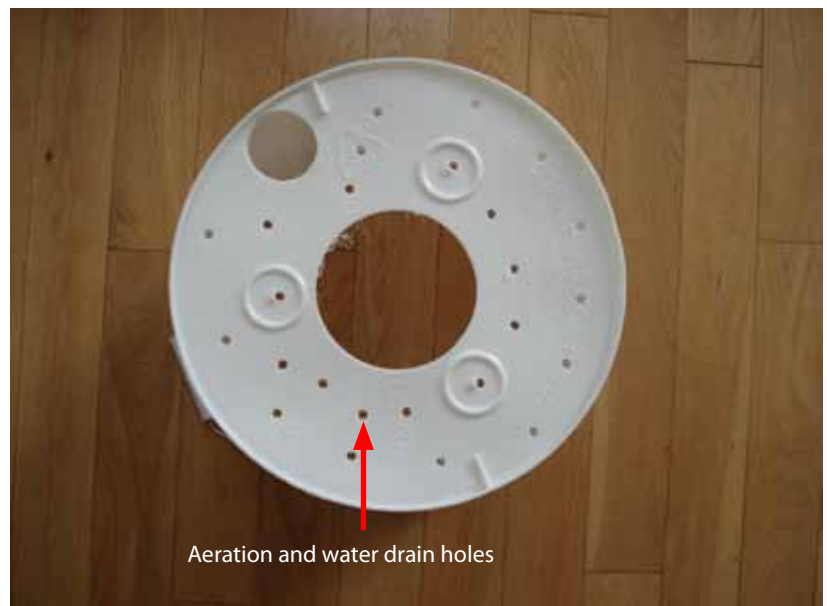
Drill another 1" hole on the edge of the bucket. This will accommodate the water feed tube.



Drill about 15-30 holes with the 3/8" drill bit. These will act as drainage cum aeration holes.

This bucket will now act as the top bucket that will hold the potting mix, the fertilizer and the plant.

Do the same with the lid. Make a 3.5" hole and a 1" hole on the edge to let the 1" PVC water feed tube pass through. (picture not shown)



Take end of the PVC pipe and make a 45 degree cut at one end.



Creating a Sub-Irrigated Planter (SIP)

If you place the buckets one into the other, you will see a free space at the bottom. This is the space that will act as a reservoir for the water. The larger the space, less often you will have to fill water.



The easiest way to increase the space is to wrap the bucket on top with some styro-foam underlayment sheet.

These sheets are used usually when laying laminate floors to deaden the sound in the room and adds a moisture barrier to guard against warping of the floor. Different types and thicknesses exist. They can be expensive so get the cheapest.

Alternatively, when you buy electronic appliances, these same sheets are used to wrap and protect the appliance. If you save them they may come in handy for this purpose.



Fold the sheet to increase their thickness and wrap them around the top bucket. This helps the bucket float at a higher level.

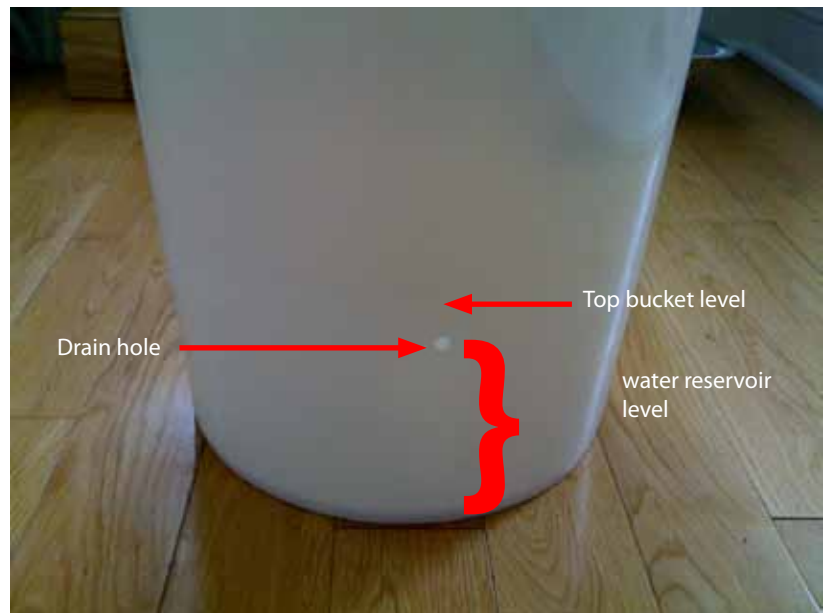


Creating a Sub-Irrigated Planter (SIP)

You can see how the height has increased dramatically from before. Try and keep the height to the height of the 16 oz disposable drinking cup. Which is usually about 5" tall.

Make a 1/4" drain hole on the bottom bucket. The hole should be about an inch and a half below the top bucket.

This inch and a half gap will help aerate the roots.



Now take the 6 oz. disposable cup and make an "X" shaped cut at the bottom.

Also make 4 vertical cuts of 3" on the side of the cup.

It is through these cuts that water will connect with the potting mix in the top bucket.



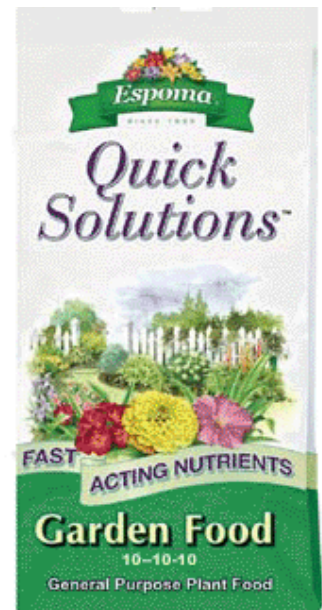
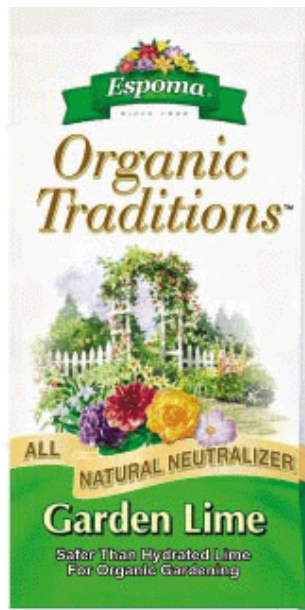
The prep work is complete now and it's time to build. You will need potting mix and fertilizer for this.

You can use any potting mix but surely not potting soil. Soil does not have the capillary action needed to pull the water up from the bottom reservoir. The potting mix is light and airy and will keep the roots well watered and aerated.



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The fertilizer is an organic 10-10-10 fertilizer and for tomatoes you will need hydrated garden lime to prevent blossom end rotting.



Place the 16 oz disposable (with cuts at the bottom and sides as described above) into the bucket with the drain holes. It should snugly fit into the 3.5" hole you made.



Place the 1" PVC (2 feet long) tube in the 1" hole. This will act as a feed tube to fill water.

Wet part of the potting mix until it is a slurry. And fill the 16 oz disposable cup and the drain holes with this wet slurry of potting mix. Wetting the potting mix will help it cover the holes without falling through it.

Now start filling the bucket with the potting mix. Pressing firmly from time to time to compact it a little.



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When you are half way through filling the bucket spread a cup of garden lime.

You will need to do this step only if you are growing tomatoes. Garden lime helps prevent blossom end rotting that's caused by calcium deficiency.



Now continue to fill the potting mix till you reach 2" from the top of the bucket. Add 2 cups of 10-10-10 organic fertilizer in the form of a ring around the edge of the bucket.

Now, fill the bucket to the top with potting mix. Once filled, cover with the black garbage bag.



Place the lid on top. Make an X shaped cut on the black garbage bag through the 3.5" hole in the lid. Plant your choice of vegetable in the center. Tomatoes are usually only one plant to a bucket.

For the first and only time water the plant directly. Rest of the time fill the reservoir using the fill tube.

The fill tube is shown covered to prevent mosquitoes from breeding in the reservoir.

