

You will gain a lot by using drip irrigation system, especially when using low gravity-pressure to deliver slow flow of water drops directly to plant roots. You will save more than 50% of water thus saving energy, time, and money. Delivering low flow to plants, gravity-drip will suppress weed growth, reduce the frequency of irrigation, and sustain surface soil quality. Because gravity pressure can be easily adjusted, flow of water drops can be adjusted to meet the increasing water needs of plant growth. Gravity drip system will make your gardening more enjoyable.

Steps in Doing it Yourself

1. You must have information about the shape and dimensions of your garden, distance to the water source (example city water or rain barrel). Plan the layout of distribution lines in the garden from the barrel to the plants
2. Purchase parts (available from your local hardware store) and assemble.
3. Install your gravity drip system according to your layout and test it

Purchasing Parts and Assembly

Being low-pressure, gravity drip system is simple and economical. You do not need costly drip irrigation

accessories, such as high-pressure fittings and connectors, pressure and flow controllers, valves, etc. You need simple parts:



START A GRAVITY-DRIP-IRRIGATION SYSTEM IN YOUR GARDEN

Part I. Using Barrel System (Falling Gravity Pressure)

1. 30 gal (or larger) plastic outdoor barrel (outdoor trashcan). Don't forget the lid to avoid excessive dust and dirt from entering irrigation system.
2. 1/2" CPVC male adaptor, 1/2" female adaptor, #16 O-ring, 1/2" CPVC tube, 1/2" CPVC caps, 1/2" CPVC Tees, 1/2" CPVC elbows, 1/2" PVC coupling.
3. 5/8" garden hose (old one will work)
4. Drip lines (5/8" soil soaker hose or 1/4" 6"-space



fitting and goof-plug.

soaker drip lines). If using the 1/4" soaker drip lines, you will need 1/4" transfer barb

Tools that you need are 7/8" wood-drill bit, drill, tube cutters, sand paper, pliers, heck-saw.



Assembling the Gravity Pressure Barrel

Assembly is relatively simple, but if you need help or want to obtain one that is already assembled, contact Ginting Environmental Consulting LLC.

1. Drill the barrel at the side, 2" from the bottom. This will allow dirt to settle out at the bottom of barrel and reduce dirt entry into the irrigation lines.
2. Make a plastic washer by heck-sawing a 1/4" long of the 1/2" PVC coupling. Smooth out the rough edge.
3. Make 1/2" connectors by cutting a 1/2" CPVC tubes to 2" long pieces using the tube cutter. Insert one to the 1/2" female adaptor and tap with wooden block tightly into the female adaptor.
4. Insert the 1/2" PVC plastic washer into the 1/2" CPVC male adaptor from inside the barrel. From outside the barrel, insert the O-ring and the 1/2" threaded female adaptor. Make sure you smooth out and sand the female adaptor to avoid leaking from the O-ring. Hold the female adaptor with pliers and hand tighten from inside.
5. You just made a barrel for gravity-pressure. It can also be used as rain-barrel.



Assembling Manifold for 5/8" soaker hoses

1. Insert and tap tightly (using wood) three 1/2" connectors to each 1/2" CPVC tees. Make as many as the number of rows to be irrigated.
2. Insert and tap tightly (with wooden block) two 1/2" connectors to each 1/2" CPVC elbow.
3. Make 5/8" hose cuts, 1-inch shorter than the plant row spacing.
4. Connect the hose cuts to the tees. If the connection is not tight, wrap around the connectors first with duct tape and then insert the hose. The number of tees and elbows equals the number of plant rows. One elbow is used for each edge-row.
5. Cut the hose at the center of manifold and insert a tee to be connected to the barrel with a 5/8" garden hose.

Assembling Manifold for 1/4" Soaker Drip Lines

If using 1/4" soaker drip lines, the manifold is simpler, essentially made from a 5/8" garden hose, 1/4" transfer barb, and a 1/2" CPVC plug.

1. Cut a 5/8" garden hose as long as the total length of all row spacing.
2. Punch a small hole (with a sharpened nail or small screw-driver, 1/8" diameter) on the hose and insert a 1/4" transfer barb into the hole. Repeat the process for as many as the number of rows with spacing equals to the plant row spacing.
3. Plug the end of manifold with 1/2" CPVC plug. The plug is made from a 1/2" CPVC connector tightly inserted to a 1/2" CPVC cap.

4. Cut the hose at the center of manifold and



insert a tee to be connected to the barrel with a 5/8" garden

hose. Voila! Now you have a manifold for use with 5/8" soaker hose or 1/4" soaker drip-lines.

Laying Out the Distribution Line

First example. In this example, a rectangular-shape plot (like the ones in the Community Crops gardens) is used. There are 8 plant rows of crops at one foot spacing. In the middle of the plot, two foot-spacing is left for traffic. At the end of this row, a small patch is planted without distinct rows.

In this example, distribution lines are 5/8" soaker hoses. Installation is simple.

1. Unroll and lay the soaker hose on the plant rows and cut to the length of the row. Hold the soaker on the ground using U-shape 14-gage wire.
2. Connect all the tees and elbows of the manifold to the soaker hoses.
3. In one of the rows, the soaker hose at the end of the plot is coiled 10" spacing to supply water for plants without distinct rows. Because there is no distinct row, lay the soakers in a coil pattern from outside to inside 10" apart. In a coarser (sandy) texture soil, the distance may be reduced



(start with 10" spacing, and reduced as needed)

4. Plug the end of soaker hoses. Wooden plug works well because it has pores and functions like a dripper also.

TIP: To cut the cost down, use 5/8" wood dowel as plug. You can buy a 4 feet 5/8" round wood stick for less than \$4.00. Cut them to make 48 dowels (\$0.09 a dowel). If using CPVC plug, each cost \$0.25.

5. Connect the manifold to the barrel with a piece of 5/8" garden hose. If not tight, first wrap the connector with duct tape and insert the hose.
6. Drill a hole on the barrel lip to tie the barrel to a fence post and the lid to the barrel with a couple of zip tie.
7. Observe if there is any leak from connections.

Second Example: In this second example, both the



5/8" soaker hose and 1/4" drip-lines are used. This example layout is more complex than that in example 1, where a 5/8" garden



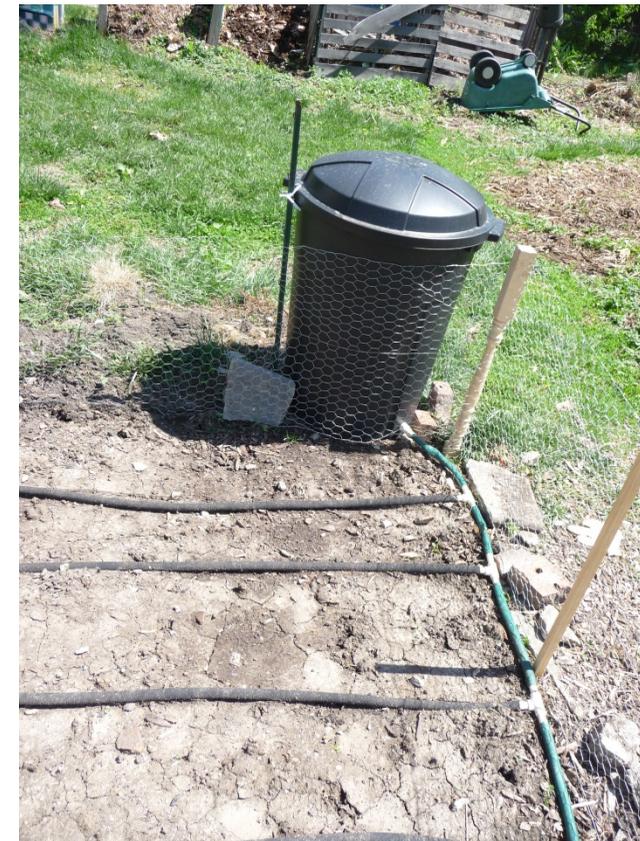
hose (to supply water to 5/8" soaker hose) is also used to supply water to 1/4" soaker drip lines for watering plants in two feet by two feet spacing.

So, No more water wasting!! Time to implement gravity drip irrigation system and enjoy your gardening more.

Try to do it yourself first, or have the system set up and installed for you by Ginting Environmental Consulting LLC.

Daniel Ginting, 402-310-2673

dnl_ginting@hotmail.com



DO IT YOUR SELF

START YOUR LOW-PRESSURE GRAVITY DRIP IRRIGATION TODAY!!