

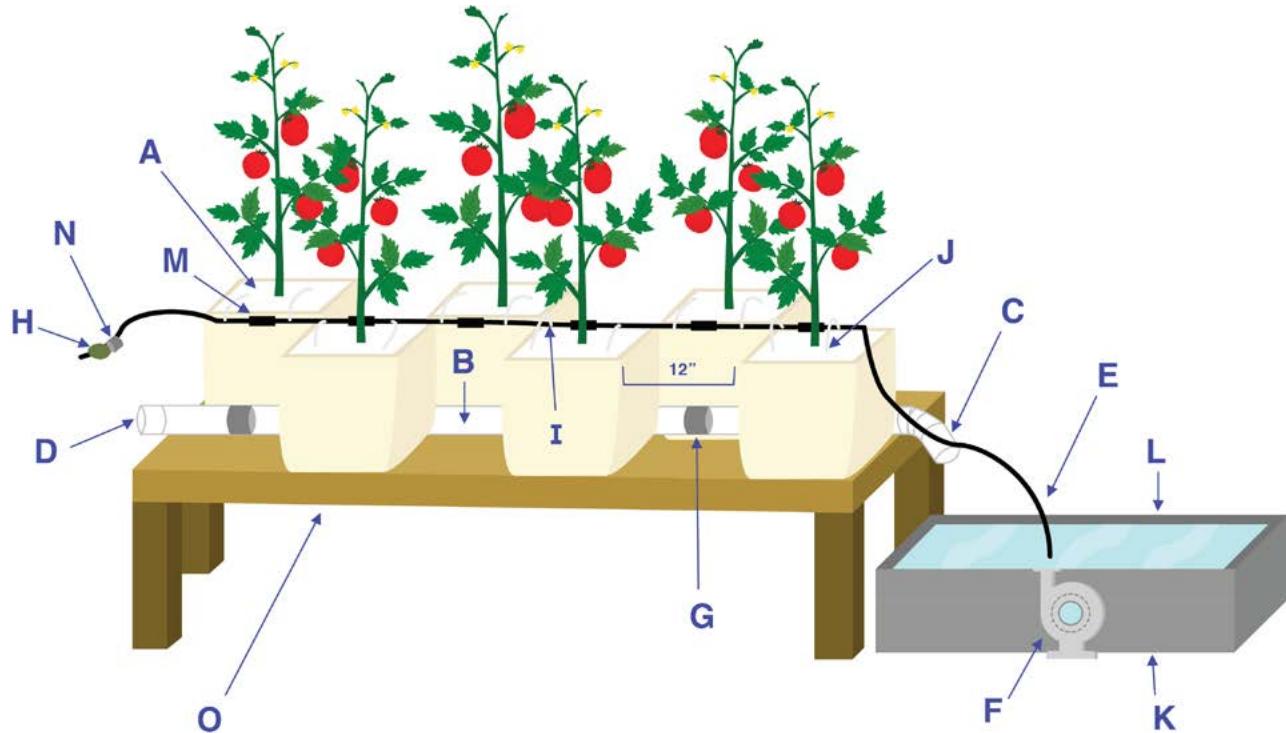
# **DESIGNING AND BUILDING A DUTCH BUCKET SYSTEM**

Once you have a [growing location](#) and have [tested your source water](#) to be sure you don't require extra filtration, you can start the construction of your very own dutch bucket system.

This is just a sample of how to build your own. You can make adjustments as needed and scale up the size if you want.

Here is a list of the things you will need for a 6 bucket system:

LABEL	MATERIALS	QUANTITY	SIZE
A	Bato buckets with Bato elbow for Hydro Trough	6 buckets 12 elbows	Size of bucket 11 lt
B	1.4 inch PVC tubing	1	6 ft 2"
C	PVC Elbow for 1.4 inch PVC tubing	1	-
D	PVC cap for 1.4 inch PVC tubing	1	-
E	Netafim Black PE tubing 16mm .520" x .620"	1	15 ft
F	Pump	1	400 GPH
G	1.5 inch Conduit clamping	2	-
H	Netafim 16mm inline shut off valve	1	-
I	Netafim goof plug	12	-
J	Netafim dripper assembly	12	2 GPH
K	Reservoir	1	20 gal
L	Water		20 gal
M	2 inch binder clips	6	-
N	Pipe clamps	2	-
O	Table 2X4s (Legs, side stretcher and box apron) 2' by 8' sheet of melamine (Top)	1	Top: 6 ft x 2.2 ft Right legs 11" Left legs 14" Box apron 5.5 ft x 1.7ft Side stretcher 1.7 ft



Hort Americas can provide you with the supplies you need with the exception of the wood, PVC, binder clips and clamps which we suggest sourcing locally.

## SUBSTRATES

The next step is to decide what substrate you'd like to grow in. That depends on the crop you are growing and personal preference. Some options are:

- Coco coir/ chips
- Peat
- Expanded clay pellets (Hydrokorrels)
- Perlite
- Vermiculite
- Peat

These substrates can be blended or used alone. The smaller the particle the more water retention you will have and larger particles allow for better drainage. It is a good idea to research the crop you want to grow to find which substrate will provide the optimum drainage and water retention necessary to keep your crop healthy and happy.



## NUTRIENTS

Once you have completed building your system, fill your reservoir with water. If your pH is above 7 adjust your pH down to around 6 - 6.5 before adding your nutrients. The nutrients you add will vary depending on your crop. Most, if not all, of the needed fertilizers can be purchased through Hort Americas. Some growers choose to purchase a pre-mixed product that usually will come in at least two parts. Part A has the calcium nitrate, iron and sometimes half of the potassium nitrate and Part B includes the remaining nutrients. It is split this way to prevent the reaction of calcium with sulfate and phosphate that will cause some of the nutrients to fall out of solution and not be available to the plants. There are other sources of information on fertilizer recipes by universities for various crops that can be found online.

It is important to have the tools to monitor your pH and EC. You can purchase the [Bluelab Grower's Toolbox from Hort Americas](#) for \$199 if you do not have a pH and EC meter. These are very important tools to have, and please don't forget to calibrate your pH meter regularly to get accurate readings. This is a great kit that comes with information for the grower along with the calibration solutions and probe cleaners to get you started.



I like to keep a record of the water added to the reservoir, along with exactly which nutrients and how much and any pH adjuster used. This helps you gain an understanding over time of how much is needed so you can take some of the guesswork out of it.

When adding fertilizers and pH adjuster always go slow. It's better to keep adding small amounts than to add too much at once causing you to have to dump your reservoir and start over.

Over time, imbalances can occur in a recirculating system. You can either get a lab analysis of your water chemistry and adjust accordingly, or do a system dump every so often to keep things in check.

## LIGHTING

Lighting is another input that you must not ignore. If you are growing indoors you will need to provide all the light your crop needs to perform photosynthesis to fuel growth and development. Not all lights are created equal and you will need to find out what intensity, spectrum and daylength is best for your crop. Information about lighting can be found here:

<https://hortamericas.com/defining-lighting-terms/>

And here:

<https://hortamericas.com/uncategorized/horticulture-lighting-basics/>

Hort Americas can help you decide which light is best for your crop and environment. Here some of the options we have: <https://hortamericas.com/product-category/horticultural-lighting/>





Now that your system is built, substrates are chosen, the nutrients are mixed and lighting has been provided- it's time to plant!

Most of the time seeds are started in plugs, then placed in blocks before planting into the dutch bucket system. A popular option for propagation is rockwool (also known as stonewool). Rockwool will give you uniform germination and a balance of water and air needed by your plants. If growing organically, there are plugs and blocks made of coco coir that also work well.

If you have any questions please contact Hort Americas for continued support at  
[salesupport@hortamericas.com](mailto:salessupport@hortamericas.com) or [technicalservice@hortamericas.com](mailto:technicalservice@hortamericas.com)

*Happy growing!*



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