

# **ALASKA GROW BUCKETS**

<http://alaskagrowbuckets.com/>



**Designed by Jim Lister**

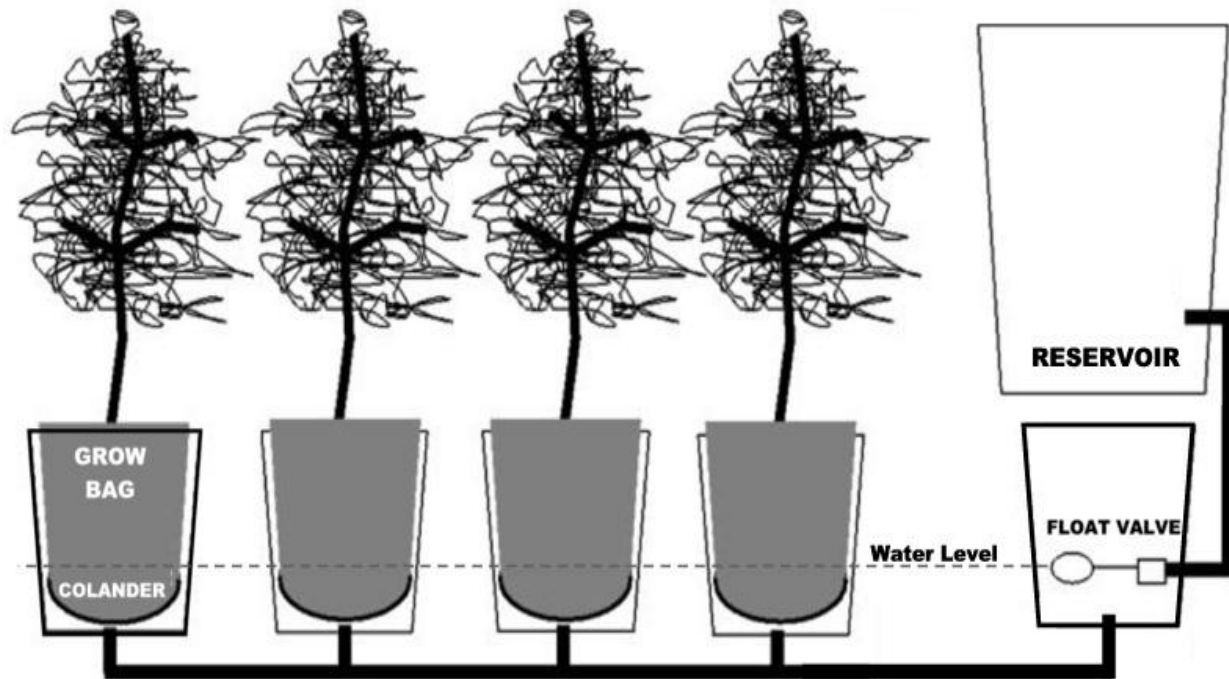
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The **Alaska Grow Bucket** design is based on bottom watering which depends on a wicking medium to draw water from below up to the plant roots.

Several Grow Buckets can be combined in a system and connected to a bulk reservoir for automatic irrigation. A float valve regulator is used to maintain the optimal water level throughout the system. As the water is drawn up and absorbed by the plants the float will drop and open the valve replenishing the system automatically. My system has a 35 gallon reservoir that I refill once a week. See the detailed diagrams at the end of this guide.



The advantage of this system over a true hydroponic system is the lack of liquid pumps to circulate water and nutrients and air pumps to aerate the root zone. The lack of electric pumps means that power is not necessary. You can use this system anywhere you have a water source.

The first key to this system is the growing medium. It must have a strong wicking property. Soil or compost will not work. A soilless mix with the correct properties is necessary. I prefer a commercial product called **Sunshine Mix #4** by **Sun Gro Horticulture**. It consists of Canadian Sphagnum peat moss, coarse perlite, starter nutrient charge (with Gypsum), dolomitic limestone and a wetting agent. Other Peat based soilless growing mixes will also work – but the addition of perlite and dolomite lime are recommended.



The second key to this design is the readily available fabric shopping bag. These common bags can be found at most supermarkets and are very inexpensive or free. The bags are made from spun polypropylene and are very porous. To test a bag simply fill it with water. If it runs out freely then it will work. Similar “Grow Bags” are available from nursery and garden suppliers at a much higher cost. Canvas or burlap bags may also work – but they will eventually rot and fall apart. The porous fabric allows excess water drainage and aeration of the root zone which is necessary for optimal growing conditions. The system is also based on the principle of “air root pruning”. As roots grow out to the porous fabric they become exposed to air, dry out and die. This causes the plant to produce dense fine feeder roots and prevents root circling. The increase in fine feeder roots leads to better nutrient and water absorption and promotes accelerated plant growth.



The third key to this system is the 5 gallon support bucket with plenty of ventilation holes around the sides. The bucket helps support the fabric bag and the ventilation holes allow adequate air movement. The bucket also acts as a water reservoir below the bag providing a water source for the wicking grow medium. By maintaining the proper water level with the float valve regulator the medium will never dry out and will continuously wick moisture up to the root-zone.





## Materials List

1. 5 gallon Plastic Bucket
2. ½" rubber grommet
3. 10" plastic Colander
4. Fabric shopping bag

I bought my buckets at Home Depot for a very reasonable price but free used buckets are even better as long as they can be cleaned.

If you are lucky enough to locate a 10" Arrow 4Qt Plastic Colander it will fit inside a standard 5 gallon plastic bucket after trimming off the side handles with some heavy shears.

The rubber grommets are available from any good hydroponic supplier.

The fabric shopping bags are available at most supermarkets. Simply fill with water to test if they are porous.



You can find items to construct your own **Alaska Grow Bucket system** on the Web at:

**AlaskaGrowBuckets.com** – [Alaska Grow Bucket Store](http://AlaskaGrowBuckets.com)



## Tools

1.  $\frac{3}{4}$ " Step Drill bit
2. Electric drill
3. Heavy shears or snips for trimming plastic colander.



## Construction

1. Drill a series of  $\frac{3}{4}$  inch holes in the bucket as illustrated. Drill as many holes as you like starting 6 inches from the bottom of the bucket. These holes along with the porous fabric bag provide air to the root system and that is the key to this design.
2. The lower portion of the bucket has only one opening. This is the water reservoir. You will drill one hole at the very bottom for your fill hose fitting. Insert the rubber grommet into this opening and it must fit tight or it will leak. Using your  $\frac{3}{4}$  inch step drill you will want to stop before reaching the top step keeping the hole about  $\frac{11}{16}$  inches in diameter for a snug fit.

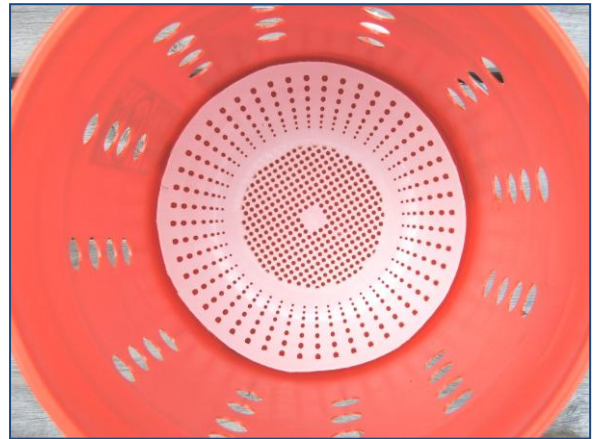


3. Add a ½ inch barbed hose fitting to the grommet.

Your fitting may differ depending on how you connect your buckets - ½ inch barbed fittings are available from hydroponic suppliers.



4. Trim the plastic colander to fit inside your bucket.



5. Place the fabric bag inside the bucket. I trimmed off the shopping bag handles.



6. Plug the fill hole and add water to the bottom of your bucket and begin adding your growing mix.



7. Fill the bucket in layers and soak each layer well to activate the wicking property of your soilless mix. Dry mix will not work.



8. Add a layer of slow release natural fertilizer to the bottom layer of grow mix.





- 9.** An additional ring of fertilizer should be added near the top.



- 10.** Continue adding layers of grow mix and wetting down with water





**11.** A plastic sheet is added to reduce water loss through evaporation.



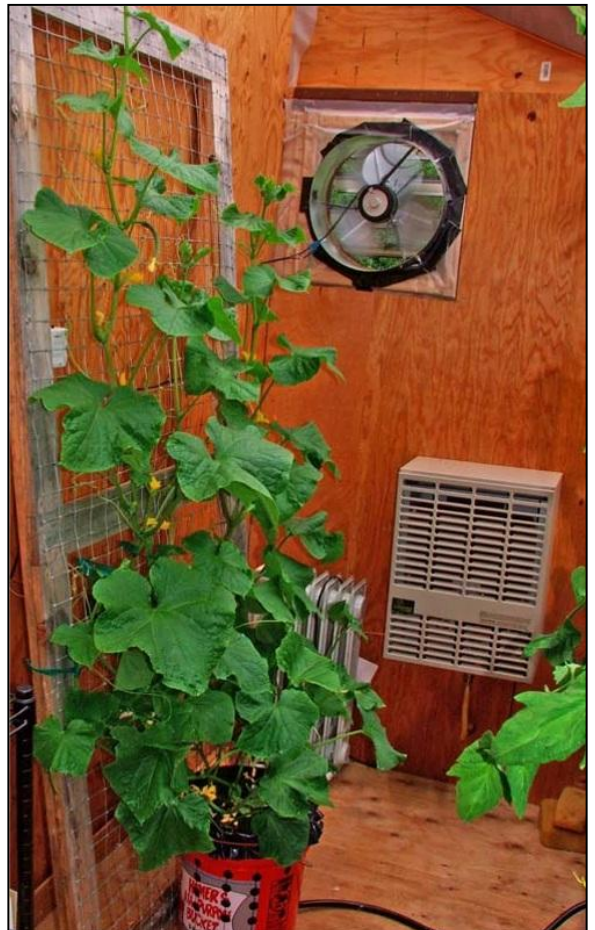
**12.** Cut slits in the plastic for planting.



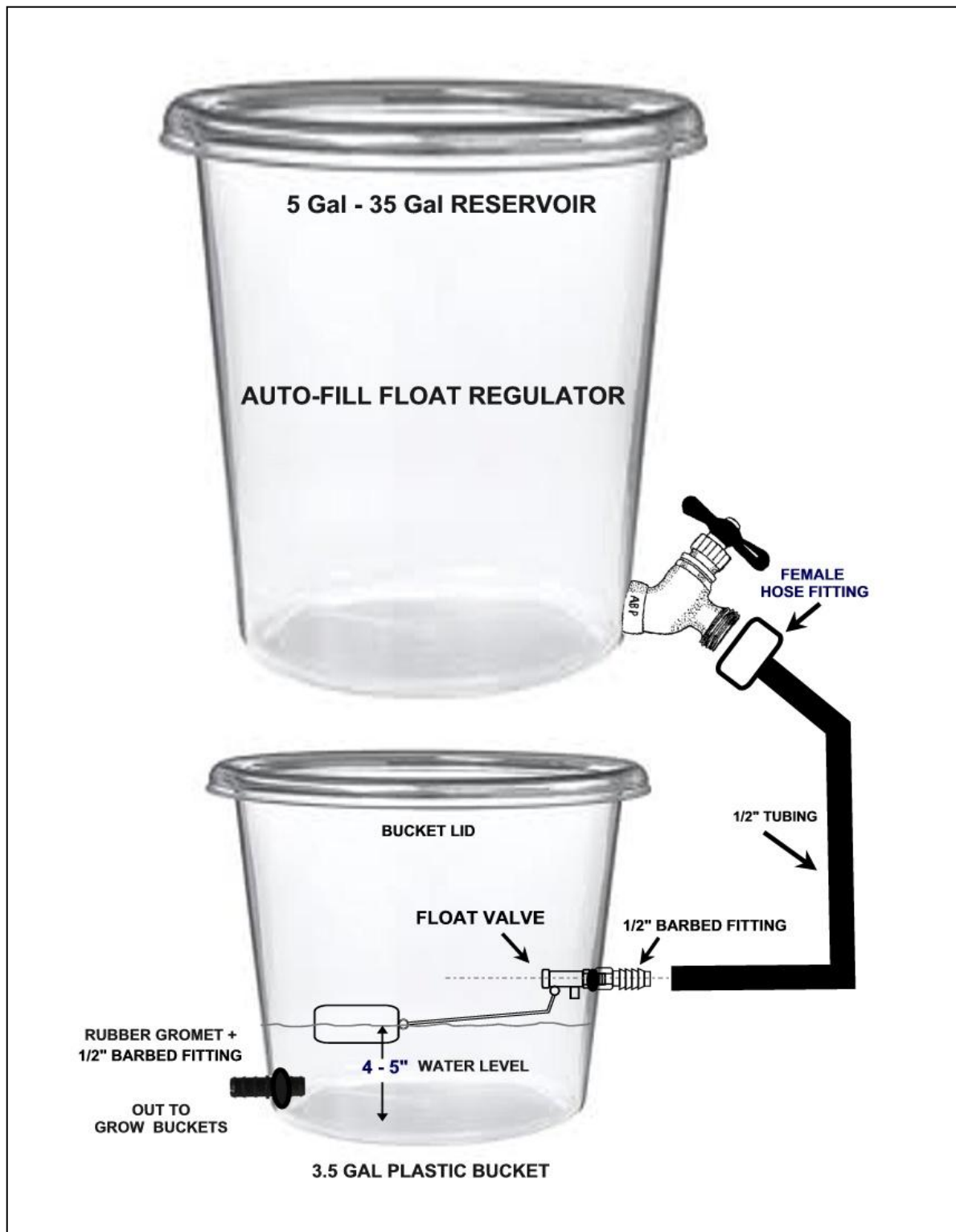
- 13.** I chose a nice looking Alaska grown cucumber that I purchased from a local garden center to test my design.



- 14.** The bucket was attached to my greenhouse auto-fill reservoir system. This photo was taken about 4 weeks after planting in my Alaska Grow Bucket. I believe the results speak for themselves.



The key to setting up an **Alaska Grow Bucket multi container** system depends on a simple float valve regulator and a bulk reservoir for automatic watering.





You can add as many Grow Buckets in your system as space allows, but remember to leave enough space for the plants to grow with adequate air movement for ventilation and to remove excess humidity. Overcrowding impedes ventilation and promotes the spread of fungal disease and blocks light transmission within the plants. Nutrients can be added in the form of a dry natural slow release fertilizer added to the growing mix or as a water soluble nutrient added to the water reservoir. Any hydroponic reference guide will give nutrient requirements for specific plants.

