



FOOD RISING MINI FARM GROW BOX 2.0 ASSEMBLY INSTRUCTIONS (STARTER)

Congratulations on receiving your Mini-Farm Grow Box 2.0! My name is Mike Adams, and I developed this system based on the Non-Circulating Hydroponics principles taught by B.A. Kratky at the University of Hawaii.

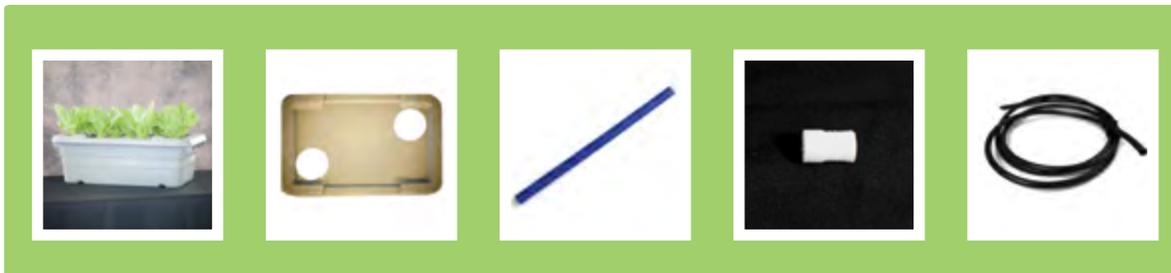
This is the vastly improved and redesigned 2.0 version of this system, now with fewer parts and a more reliable self-watering system that avoids potential leaks altogether.

The Mini-Farm Grow Box is a self-watering system. There's no need to constantly add water or nutrients to the grow bin itself. Instead, you add water and nutrients to the Water Reservoir Pail. This reservoir can feed water and nutrients to multiple grow bins. (You can also replace the pail with a larger barrel, if you wish, to provide a larger water supply for multiple bins.)

Here's a straightforward guide for assembling your Grow Box. You do not need any special tools to assemble this system.



PARTS:



Grow Box Bin

Grow Box Lid

Blue PEX Pipe

White Valve
adaptor

1/4" Solid Poly
Micro Tubing (PE)
For Drip Irrigation
System



Float Valve

3.5 Gallon Pail
with lid (white)
(only available
with Starter Kits)

Coconut Coir
Grow Medium
(650 gram)

Shutoff Clamp

Net pots



ASSEMBLING THE TUBING:

1. Screw the threaded end of the white valve adaptor into float valve. Thread it all the way in, as far as it will go. Finger-tighten firmly. (Do not tighten with tools or you may break it.)



2. Insert either end of 1/4" black irrigation tubing into the free end of white valve adaptor. Make sure the connection is tight so it will not come loose. This process can be made easier by slightly heating the black irrigation tubing with a lighter for 3-5 seconds to soften it.



3. Feed the free end of black irrigation tube through blue PEX pipe.

Affix the blue PEX pipe snugly over the free end of the white valve adaptor by manually pushing it on. It should fit snugly.





4. Feed the free end of the black irrigation tubing and blue PEX pipe through hole on **UNDERSIDE** of the grow box lid. It should fit snugly and firmly, with some resistance on the PEX pipe. You can adjust the height of the auto-watering by sliding the PEX pipe up or down, effectively placing the float valve at a different height inside the bin.



5. Place the lid on the Grow Box.
6. Insert the free end of black irrigation tube into the 1/4" hole of the Water Reservoir Pail. You will want to position the water reservoir a few inches higher than the level of the float valve of your grow box. This allows the water to gravity flow down to the level of the float valve. To accomplish this, you may place the pail on top of an 8" block or other similarly sized object.
7. Fill the white pail completely with water. You should now observe a slow trickle of water entering the grow box through the tiny hole in the center of the float valve. This is the desired flow you want to see. When the water level rises to the level of the float valve, the water flow will be shut off. This is the auto-watering feature at work.
8. Note that in non-circulating hydroponic systems, plants start with a bin that's nearly full of water (see instructions below). But after the initial sprouting, plants typically only need 2-3 inches of water in the bottom of the bin, so you should position the float valve toward the bottom third of the bin for best results.

ASSEMBLY IS COMPLETE! Now, you'll simply need to plant your seeds in the coconut coir and add nutrients to the water. For complete instructions on planting and nutrients, refer to FoodRising.org. The following URL provides easy instructions:

<http://bit.ly/1Q0xOa3>



TEST THE WATER FLOW:

The Mini-Farm Grow Box is a self-watering system. You never need to add water or nutrients to the grow bin itself. Instead, you add water and nutrients to the water reservoir (the 3.5 gallon pail). If you wish, you can use a larger pail or other container to create a larger water reservoir. One reservoir can feed water and nutrients to 10+ grow bins! Before planting seeds, it is important to test the gravity flow of automatic watering function of the grow box:

1. Confirm that you have the float valve installed with the correct orientation inside the grow bin. The float should actuate vertically (up and down) when you gently lift it with your hand. This simulates the rising of the float as the water level rises in the grow box.
2. Confirm you have the 1/4" drip line connected securely to the float valve nozzle, with the other end securely inside the water reservoir (white pail).
3. Normally you will want to position the water reservoir a few inches higher than the level of the float valve of your grow box. This allows the water to gravity flow down to the level of the float valve. To accomplish this, you may place a 4" brick or a similar-sized object underneath the water reservoir (white pail).
4. Fill the white pail completely with water. You should now observe a slow trickle of water entering the grow box through the tiny hole in the center of the float valve. This is the desired flow you want to see.
5. Allow the water to fill the grow bin until the float valve rises sufficiently to block the incoming water flow. At this point, you should have approximately 2 or 3 inches of water in the bottom of the grow bin, and a much higher water level in your water reservoir. Allow this state to remain for a few hours to make sure your float valve really is blocking off the incoming water. If the water level does not rise higher in the grow bin, then you have confirmed the float valve is working to block the incoming water, just as it is designed to do.

TIP: If you place your water reservoir too high, it will increase the gravity pressure of the water and may cause excess water to be pushed into your grow bin. Do not raise the water reservoir higher than approximately 6" off the level surface where your grow bin is also placed.

6. You have now confirmed the full function of the grow system! If you used a high quality water source to begin with, you may now add nutrients directly to the water in the grow bin (only needed once, at the beginning of each new "crop") and also to the water reservoir.



TIP: Acquire a TDS meter (about \$15 on Amazon.com) to test your water for Total Dissolved Solids (TDS) and Electrical Conductivity (EC).

TIP: As a rule of thumb, you will add plant nutrients and CalMag formulas in about a 1:1 ratio to the water, aiming for a TDS number of approximately 1200 - 1500. For more detailed instructions, see FoodRising.org for a comprehensive guide on hydroponic nutrients for various plants.

7. You may now place the lid on the grow bin, making sure the bottom half inch or so of each net pot is immersed in the water being held in the grow bin. This assures water reaches the coconut coir and allows your seeds to sprout. Over time, as the water level drops in the grow bin, your plants will grow roots to follow the water down, extending to the bottom of the grow bin where fresh water and nutrients are fed through the float valve.
8. You may now plant your favorite seeds! Make sure the system has adequate sunlight and watch Mother Nature perform its food miracles!

Have a suggestion on how we can improve the system?
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