

# HORT AMERICAS

## GROWRACK™ MANUAL



**1.** Place desired substrate in a 10" x 20" mesh tray and saturate. Most commonly used are Grodan rockwool 1" cubes. You can also use Grodan Delta blocks (larger) for growing the plant to full size in the [GrowRack™](#) by transplanting the 1" cubes in them (as long as it is a shorter crop such as lettuce) or using the Delta block without a hole to direct sow into a larger cube. If growing organic, you can use CBOPs (closed bottom organic plugs) or sow directly into the coco starter blocks. Feel free to call us with questions 469-532-2383

**2.** Meanwhile mix your stock solution.

NOTE: If growing organically, please refer to Tyler Baras' guide to growing organic leafy greens here: <https://hortamericas.com/download-organic-leafy-greens-handout/>

### HERE ARE THE ITEMS YOU WILL NEED FOR STEP 2:



Two 5 gallon buckets with lids



[Hort Americas 9-7-37 Hydroponic Fertilizer](#)



[Magnesium Sulfate K+S](#)

[Calcium Nitrate](#)



Measuring cup



A drill with paint or concrete stirring attachment



Two 4-5" round airstone attached to two outlet air pumps



Flow meter



Scale

- Get two clean 5 gallon buckets with lids.
- Fill each bucket with 4 gallons, carefully measuring using a flow meter. If you have warm water that will help the nutrients mix easier, but is not necessary.
- Label one bucket STOCK A, and the other STOCK B
- Carefully measure 1,432g Calcium Nitrate and add to STOCK A bucket. Mix thoroughly using a drill and paint or concrete stirring attachment.
- Carefully measure 824g Hort Americas 9-7-37 and 668g Magnesium Sulfate and add to STOCK B bucket. Mix the same way as STOCK A.
- Place a 4-5" round airstone in each bucket attached to two outlet air pumps to keep the solutions agitated.
- Cover with lids and place in a location out of direct sunlight to prevent algae.

**3.** Fill your reservoir and slowly add equal parts STOCK A and STOCK B until your EC level reaches about 1.5-2.0. REMEMBER: it is easier to add a little at a time than to start over, so take your time. It is a good idea to keep records of the gallons of water and mL of your stock solution added each time you fill or top off your reservoir. Over time these records will give you a point of reference of what works best for you and your crop. I also like to include my water temp, EC and pH on these spreadsheets for future reference.

**4.** Check your pH. Adjust as necessary to reach about 5.6-6.0 using pH up or down. Same rule applies here that it is best to start with small amounts to get to your desired pH. For example, if your pH is 6.8 I'd start with as little as 10 mL pH Down to get a feel for it. Give your water time to completely circulate before testing again and repeat until you reach the desired pH. You will most likely have to adjust your pH everytime you add water to your reservoir. Try to keep the pH as consistent as possible.

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.



<https://hortamericas.com/catalog/growing-supplies/bluelab-growers-toolbox/>

Once your water is at an EC of 1.5-2.0 and pH 5.6-6.0 it's ready to go.

**5.** Turn your GrowRack™ on and run the water adjusting the flow using the ball valves so each tier on your GrowRack™ fills with enough water to wet the substrate from underneath, but not to wash over the top. Each valve will have to be adjusted independently because the water pressure will be stronger on the bottom tier. You can put the pump on a timer for watering, but it will take a period of observation to know how often it needs to run depending on your growing environment. You want the substrate to stay consistently moist, but not wet, and you never want it to dry out. I recommend watering manually at first before you rely on a timer.

**6.** Now that you are set up, you can place your seeded trays in the GrowRack™.



**7.** Most leafy greens do well with a photoperiod of about 18 hours a day in a 3 light GrowRack™. If you are letting your plants mature in the GrowRack™ you may need to cut back the length of time you are running your lights to prevent tipburn. This is because the light intensity will increase as the plants grow closer to the lights, causing the plants to transpire faster than calcium can travel to the new growth. It is recommended to put your lights on a timer.

**8.** Ideal conditions are around 70-75°F and about 50% relative humidity if you have the ability to control these conditions in your grow area.

**9.** Air circulation is key to prevent fungus, especially in winter, so be sure to have some fans nearby to keep the air moving.

**10.** You can expect your seedlings to be ready for transplant in about 14 days.

And remember, these are just general recommendations. Feel free to experiment with how long you run your lights or how often you water to find what works best for you and your crop. You may find that in the beginning you need to water more often compared to when you have more roots and a larger canopy depending on your growing environment.

*Happy growing!*

