

Growers Guide

Environment: Maintaining proper environmental conditions ensures plants will produce at their optimal levels. their optimal levels.

Temperature: Temperature: Proper grow room temperature is crucial for plants to carry out important functions such as photosynthesis and transpiration. During the vegetative growth stage maintain temperatures between 80-83° and between 70-80° during the flowering stage.

Humidity: Working in conjunction with temperature, humidity ensures natural plant processes such as transpiration, can take place. Maintain vegetative humidity levels between 60-70% (daytime) / 45-60% (nighttime) and flowering humidity levels between 40-60% (daytime) / 30-40% (nighttime).

pH: Maintain pH levels within the proper range of 5.5-6.5; at this range plants can absorb all the necessary elements for healthy growth and flower production.

ppm/EC: The Under Current system provides high levels of dissolved oxygen to the root zone, allowing plants to uptake water and nutrients more efficiently. As a result, less nutrient inputs are required. For best plant performance follow the Cultured Solutions Feeding Schedule.

Water Temperature: Keeping water temperatures within the optimal range of 65-68° will ensure high levels of dissolved oxygen are maintained in the root zone. Cool water temperatures will also aid in disease suppression.

Required Accessories: These important tools will maximize your gardens production.

RO Water Filter: Water quality is of the utmost importance when growing in water culture. RO water allows growers to control all minerals and nutrients their plants uptake. A reverse osmosis water filter is recommended for source waters exceeding 100 ppm.

Water Chiller: The highest levels of dissolved oxygen are only accessible with cool root zone temperatures. High water temperatures limit the solutions ability to hold dissolved oxygen, while also providing the ideal environment for dangerous pathogens. Water chillers ensure cool, consistent solution temperatures are provided to the root zone.

Meters: Utilizing metering equipment in your garden will offer precise monitoring over essential environmental factors such as pH, ppm/EC, temperature and humidity. When used in conjunction with dosing and controlling equipment, the Under Current has the potential to be completely automated.

Top-off Reservoir: Using a top-off reservoir will maintain accurate and essential solution levels throughout the course of the growing cycle, ensuring plants stay hydrated.

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Transplanting: Correct transplanting will avoid stalled growth.

Only utilize bare root cuttings or those that were rooted in Rockwool media when transplanting into the Under Current system.

- *Cuttings that were rooted in soil and coco coir have the potential to compromise the system, by impeding flow and introducing pathogens. .*

Technique:

1. Rinse grow rocks / stones thoroughly before use.
**If possible, soak 24 hours pH 5.5 solution.
2. Fill net pot to a 2" depth with rocks / stones.
3. Rest bare root cutting on rocks / stones and gently fill remaining space up to 1" from the top lip of the net pot.
4. Adjust system water level to top of root crown.
5. If using rockwool cuttings adjust water level to just below Rockwool cube.
6. Place net pot into the lid on top of each growth module.

Water Levels: Plants thrive in consistent water levels.

Fluctuation in water levels can result in stalled growth and cause undue stress upon plants. Because water is the plants media it is crucial to maintain proper water levels to ensure plants are hydrated.

Early Growth Stage Water Level

- Water levels should be maintained at ¼" under the top of the 2" planting deck when using Rockwool, or under the root crown with bare root cuttings.
- Be advised when using Rockwool or similar media, to set water levels just below the bottom of the Rockwool cube to prevent oversaturation.

Late Growth Stage Water Level

- Once there is sufficient lateral root growth through the net pot, set water levels ¼" under the bottom of the 8" net pot. (approximately week 2 of bloom).

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Vegetative Growth: Accelerated growth rates reduce vegetative growth times significantly. Plan accordingly.

Accelerated Growth: It is important to follow the recommended vegetative times for your specific Under Current system. With the potential for explosive growth in the Under Current, it is important to maintain strict vegetative times, or plants may potentially outgrow their growing space.

pH Adjusting: Plants need consistent pH, ppm/EC levels. Using one of the following methods for pH and ppm/EC adjustments.

Top-off Reservoir: For best results pH and ppm/EC adjustments should be done through the top-off reservoir.

Nutrient Doser: When implementing nutrient dosing or fertigation equipment be sure to consult your equipment manufacturer for the proper concentration ratios.

Add-backs: Dilute desired add-back concentrates into a volume of water before slowly adding into your system. Use a venturi, such as the CCH20 Add-Back Kit injector, to easily introduce add-back into your Under Current system.

Change Outs: Regular change outs ensure plants receive balanced nutrition.

Regular change outs ensure plants receive balanced nutrition. It is recommended to perform a full nutrient change out every 7-14 days. This will ensure nutrients are fresh and viable, while also correcting any imbalances to the nutrient solution.

Flushing: A full system flush is only necessary at the end of the flower cycle or if pH becomes unstable.

Root Pruning: Root maintenance will contribute to a healthy root structure.

Root pruning is the process of trimming roots to promote new growth and maintain proper root structure. This technique encourages lateral root growth which will contribute to a healthy root structure. A single root when pruned will split into multiple feeder roots, resulting in increased root surface area.

Healthy Cuttings: Strong, well rooted cuttings are essential for plants to produce to their full potential.

Cuttings: Selecting healthy cuttings that are well rooted and uniform, will translate to lush vegetative growth when transferred into the Under Current.

Mother Plants: Maintaining healthy mother plants that are pest and disease free will directly translate to strong, healthy cuttings. It is recommended to keep mothers on rotation no longer than 3-6 months.

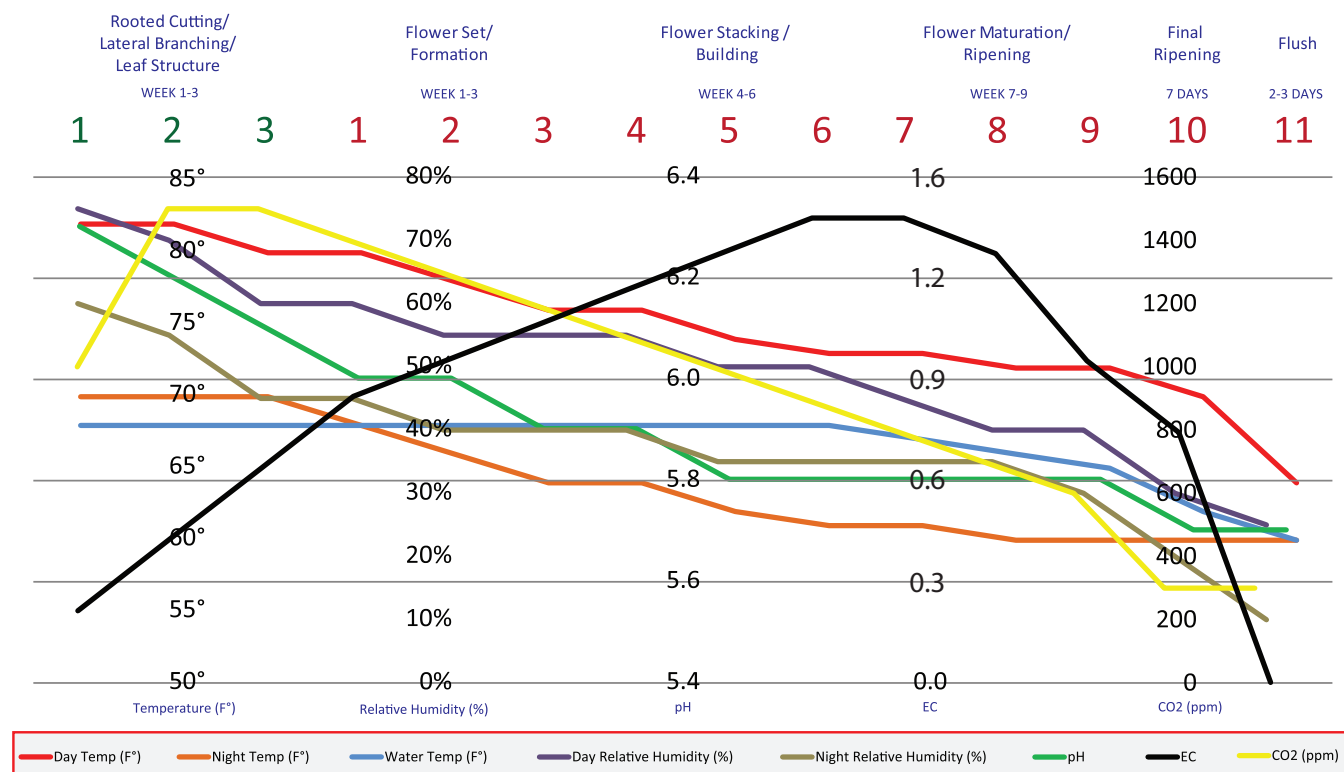
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Cultured Solutions Nutrients and Feeding Schedule: Use a high-quality mineral based nutrient line such as our Cultured Solutions premium hydroponic nutrient line and follow your gardens specific CS Feeding Schedule.

Cultured Solutions: Clean, sterile, mineral salt based and highly chelated nutrients ensure consistent results in the Under Current system. By using a high-quality, pH stable nutrient line, you will need fewer inputs and experience less frequent change outs.

CS Feeding Schedule: The Under Current system provides high levels of aeration and circulation, and as a result specific nutrient inputs are required. For best results in the Under Current, it is highly recommended to follow the CS Feeding Schedule. We've done all the work and research to ensure your plants are receiving all the minerals and nutrients at the right growth stages.

General Recommendations



Plant Growth Stage !	Rooted Cutting/Lateral Branchin/Leaf Structure			Flower Set/Formation			Flower Stacking/Building			Flower Maturation/Ripening			Final Ripening	Flush
Weeks !	1	2	3	1	2	3	4	5	6	7	8	9	7 Days	2-3 Days
Day Temp (F°)	82°	82°	80°	80°	78°	76°	76°	74°	73°	73°	72°	72°	70°	64°
Night Temp (F°)	70°	70°	70°	68°	66°	64°	64°	62°	61°	61°	60°	60°	60°	60°
Day Relative Humidity (%)	75%	70%	60%	60%	55%	55%	55%	50%	50%	45%	40%	40%	30%	25%
Night Relative Humidity (%)	60%	55%	45%	45%	40%	40%	40%	35%	35%	35%	35%	30%	20%	0-20%
pH	6.3	6.2	6.1	6.0	6.0	5.9	5.9	5.8	5.8	5.8	5.8	5.8	5.7	5.7
EC	0.2	0.35	0.6	0.65	0.85	1	1.2	1.3	1.4	1.4	1.2	0.9	0.8	0
CO2 (ppm)	1000	1250	1500	1400	1300	1200	1100	1000	900	800	700	600	300	300
Water Temp (F°)	72°	70°	68°	68°	68°	68°	68°	68°	68°	66°	64°	64°	62°	60°