

Tips on Watering and pH

Transplanting:

- The best start begins with a healthy plant, so choose a young plant, which is free of any disease or nutrient deficiency. The plant should be an even lush green and have perky leaves. The root tips and mass should be free of brown spots.
- A few days before transplanting, gradually increase the strength of the plant nutrients to the optimum levels for transplanting.
- On the day of the transplanting saturate the Delta block with nutrient solution before inserting the starter plug with the plant.
- As a general rule, you will not need to water the newly transplanted Grodan® Delta block for the first few days.
- Gently tug on the plant in the Delta block to see if the roots have anchored in the block. If the plant has grown into the block or the block feels half dry, then start watering.

Growing period:

- When your propagated plants have grown into the bigger Delta blocks, they will often go into a period of rapid growth. The resulting growth often leads to increases in pH and Electrical Conductivity [EC] or what is sometimes measured in Total Dissolved Solids [TDS].
- Be sure to water the blocks well, and frequently monitor the EC and pH of the solution in the block. This is even more important for non-top irrigation applications such as Ebb & Flood systems. The best way to retrieve solution samples from the stonewool is by use of a plastic syringe. Your local authorized Grodan® supplier should have them for sale.
- Set your first watering cycle to start when your grow light switches on (or at Sunrise).
- Be sure to complete the last watering no less than 2 hours before you switch your light off, (or 2 hours before sunset) so the blocks are not too wet during the night. (NO LIGHT, NO WATER)
- Avoid drastic environmental changes which can contribute unwanted shock or stress to the plant. Whenever possible consider gradual changes to plant influences such as nutrient solution formulations, lighting period/intensity or temperature.
- Water so that approximately 25% of the solution drains out over the day. This will help to avoid unacceptable high EC levels or TDS build up.
- Make sure that the slab or block can drain freely - avoiding situations where the stonewool is sitting in water.

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For further information, and to locate a Grodan dealer, visit:

www.hydroponics101.com

For official company information, see:

www.grodan.com

Your local store:

Watering and pH



Tips on watering and pH when using Grodan® stonewool

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THE GREEN SOLUTION



Grodan® stonewool is manufactured according to the most exact standards so you receive a uniformly high quality product every time. Grodan® stonewool products have been developed worldwide for more than 30 years to give your plants the best from the beginning to the end.

Grodan® stonewool pH neutral!

Residual lime left from the production of rockwool has led to a common misunderstanding that Grodan® is alkaline and that one has to continuously adjust the pH, when in fact stonewool is pH neutral. Begin by saturating the stonewool in no lower than pH 5.5 water the day before use. This pre-wetting of the stonewool will see an initial spike in the pH due to the residual lime. The final step involves flushing the stonewool with your nutrient solution just prior to planting or sowing. From this point onwards, the pH neutral Grodan® stonewool will not contribute to any changes in the pH of the solution.

Note: Ensuring pH values remain between 5.5 - 6.5 is essential for optimum plant development and optimum substrate integrity. If you condition Grodan® products with a solution pH lower than 5, you risk damaging the stonewool, so take steps to ensure values do not go below pH 5.5.

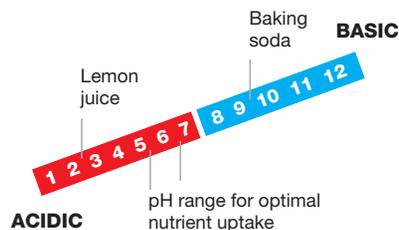
Why does pH change?

When the plant grows the pH goes up because of the root activity involved in nutrient uptake of the plant. When pH goes up it is a good sign; your plant is actively growing!

With most plants at fruit and flower setting, the pH will briefly drop and it is time to change to your bloom solution. Although the pH is changing within the stonewool from time to time, the most important thing is to maintain the same pH in the nutrient solution of the stock tank at all times.

Basic concepts pH

Below you will find an illustration of the basic pH concepts.



Watering Quick Rules*

PROPAGATION STAGE	Seed in wet cube, cover or bag it and don't water before the plant has 2-3 leaves.
PROPAGATION WHEN USING A HEAT MAT	Water over the plug (about 1 tsp. per plug), when it feels about half way dry OR mist the cube daily, but avoid misting the leaves.
EBB/FLOOD WITH BLOCKS	Young plants need watering once per day. Bigger plants need it twice per day if they are 4ft. tall.
EBB/FLOOD WITH HUGO	Young plants need watering once every 3-5 days . Larger plants need it once per day if they have reached 2 ft.; twice per day if they are 4 ft. tall.
DRIP SYSTEM WITH BLOCKS Using 1000 Watt lights	Start with 3 waterings per day. The first watering should saturate the block, with drainage from the block. But the other times, irrigate only enough to keep the block slightly wet— this makes for stronger roots, faster growth and less chance for diseases. Sample with a syringe to test for EC and pH; if either is too high, then add 1 more watering per day (refer to the EC and pH charts on the previous pages).
DRIP SYSTEM WITH BLOCKS Using 400 Watt lights	Irrigate 1-3 times per day. If only one time, then saturate well with drainage from the block. If 2-3 times, then saturate well the first time, but no drainage the second and third. Also do the syringe test for EC and pH to determine if more watering is needed.
SLABS	Water when the syringe test shows too high an EC or pH level in the slab (refer to the EC and pH charts on the previous pages)
WHEN NO LIGHT	DO NOT WATER because the plants are resting. There is also greater chance of diseases occurring.
FIRST WATERING OF THE DAY	At sunrise, when the first light shines on the plants
LAST WATERING OF THE DAY	2-3 hrs before sunset or before turning the lights off. Keeping the Grodan drier at night helps prevent root problems (e.g. pythium) and makes for a more generative plant (better blooming and setting of fruit).

*please note, these are general rules of thumb; watch the plants and adjust as needed.

Basic concepts EC

EC meters measure (in milliSiemens) how much salt (plant food) there is in the solution or in the Grodan growing unit.

0.5 - 1.5	Propagation
1.5 - 2.0	Mature plant starving
2.0 - 3.0	Optimal
3.0 - 5.0	Too much
5.0 plus	Damage



- Less water is better. Too much water causes your plants to get lazy and weak.
- If watering by hand use the “Kick the bucket method” - if the pot moves, then water.

