

# Grodan Gro-Guide



# About Grodan

Over 50 years of research and development have provided Grodan with the opportunity to work alongside many of the most productive growers on the planet. In fact, Grodan pioneered the development of hydroponic growing methods which are used today by large-scale commercial greenhouse growers.

### CONSISTENT PRODUCT QUALITY:

A recipient of the ISO 140001 rating for quality excellence, Grodan factories continue to implement strict quality controls to maintain product uniformity in density, size and weight.

### POSITIVE ENVIRONMENTAL IMPACT:

Grodan is committed to sustainability. Our products and their usage have been developed to minimize impacts to the environment from water conservation to fertilizer usage to composting our stone wool at the end of life. We have been awarded the Ecolabel certification in Europe recognizing Grodan as an environmentally responsible product.

### PRODUCT SUPPORT:

Find pertinent information on Grodan101.com including literature and videos to help the grower succeed. The Grodan team is also available to answer any product questions.

Email: [info@Grodan101.com](mailto:info@Grodan101.com)

# What is Stone Wool?

Stone wool is made from basalt (rock) that is heated to 3,000°F and spun like cotton candy into long fibers (wool). The fact that it's sustainable for the environment and your business is an added bonus.

## Benefits of Grodan Stone Wool

- Lightweight, pathogen-free, disease-free, seed-free.
- Even, rapid water distribution throughout the media.
- The most uniform growing substrate which results in consistent plant growth.
- Inert, meaning it will not add or hold back any nutrients or water from the plant.
- Usable in recirculating systems from first drain, reducing water and fertilizer usage.
- Very controllable so grower is able to steer plant growth.
- Excellent buffer and re-saturation capability.
- Unparalleled support from dedicated crop Technical Advisors.

# Plant Starters



### A-OK Starter Plugs

- For starting from seeds or cuttings.
- The 1.5" A-OK fits holes in Grodan Gro-Blocks and cellular side of Gro-Smart tray.
- The 1" A-OK plug (AO 25/40) is a special order; check for availability.



### Macroplugs

- Full side slit enables easy insertion of a rooted cutting.
- Fits Gro-Block holes and also the cellular side of the Gro-Smart™ tray (keeping the plug firmly closed around the stem of the cutting).
- Also available in cases of 2,000; check for availability.



### Mini-Blocks

- For starting from seeds or cuttings, these are stable, stand-alone blocks
- Individually wrapped in platinum plastic to minimize algae growth.
- Place on the mesh side of the Gro-Smart tray. As the plant grows, either remove the wrapping and transplant into a Grodan Gro-Block with hole or any loose media. Alternatively, leave the wrapping on and place it on top of the Uni-Slab™ or a larger Gro-Slab™.

Grodan Starter Plugs	Dimensions (in)	Dimensions (mm)	Plugs/Package	Plugs/Case
Grodan A-OK 1.5" (36/40)	1.4 x 1.4 x 1.6"	36 x 36 x 40mm	98	2,940
Grodan A-OK 2 " (50/40)	2 x 2 x 1.6"	50 x 50 x 40mm	50	30
Grodan AX Plug (25/40)	1 x 1 x 1.6"	25 x 25 x 40mm	50	35
Grodan Macroplug (36/40)	1.8 x 2"	46 x 50mm	45	50
Grodan Macroplug (36/40) loose	1.8 x 2"	46 x 50mm	24	60
Grodan Mini-Block 1.5" (40/40)	1.6 x 1.6 x 1.6"	40 x 40 x 40mm	24	60
Grodan Mini-Block 2" (50/40)	2.0 x 2.0 x 2.0	50 x 50 x 50mm	24	60

# Gro-Blocks

## Improved

Grodan Gro-Blocks Improved with Advanced Wetting Technology — our new and improved stone wool substrate. What do you get when you develop products alongside plant scientists, researchers and top growers? Products that are specifically engineered to deliver real results for your crops.



### Keep It Real

Real Science.

Real Results.

Real Improvement.

#### Real Science

Grodan partnered with the Wageningen University and Research facility in The Netherlands and top growers throughout North America to identify the optimal stone wool substrate and irrigation strategies for specialty crops. The result of months of scientific research and trials is Grodan Gro-Blocks Improved.

#### Real Results

The result of this scientific rigor is Grodan Gro-Blocks Improved with our Advanced Wetting Agent. In the scientific trials, plants grown in these new blocks had faster rooting-in, higher yields, improved quality, and less water and nutrient usage throughout the entire crop cycle.

#### Real Improvement

These leading-edge blocks have the optimal fibre structure and physical properties for crop uniformity, more even Water Content (WC) and Electrical Conductivity (EC) distribution throughout the entire block, and the greatest steering capabilities available. Water distribution is more uniform throughout the entire block which is the basis for a well-defined root system with higher capacities for water and nutrient uptake to produce robust and vigorous crops.

# Gro-Blocks

## Improved

- All pre-filled holes are perfectly sized to fit the 1.5" AOK Starter Plugs, Macroplugs or the 1.5" Mini-blocks with wrapper removed
- Range of sizes to meet your preferred growing methods and plant size
- Smaller Gro-blocks blocks are ideal for young plants before transplanting onto a Grodan Slab or Grodan Big Mama
- Larger Gro-Blocks including the Jumbo and Hugo can accommodate the entire growth cycle of your crops

Item	Dimensions in inches (LxWxH)	Dimensions in cm (LxWxH)	Blocks/ Carton	Blocks/ Pallet
GR 6.5	4 x 4 x 2.5	10.1 x 10.1 x 6.4	216	2448
GR 10 Large 4"	4 x 4 x 4	10.1 x 10.1 x 10.1	144	1584
Jumbo	6 x 6 x 4	15.2 x 15.2 x 10.1	164	768
Hugo	6 x 6 x 6	15.2 x 15.2 x 14.2	64	512
Hugo - unboxed	6 x 6 x 6	15.2 x 15.2 x 14.2		512



# Gro-Blocks

## GRO-BLOCKS

- Range of sizes to meet your growing methods
- All pre-filled holes are perfectly sized to fit the 1.5" A-OK Starter Plugs, Macroplugs or the 1.5" Mini-blocks with wrapper removed
- Most Grodan Gro-Blocks are shrink wrapped with clear film for handling comfort. Some products may also be available without the clear film. Please ask your supplier for availability.



Gro-Blocks	Dimensions (inches)	Dimensions (cm)	Blocks/Package	Blocks/ Carton	Blocks/ Pallet
Grodan D 4 Small 3"	3 x 3 x 2.6	7.6 x 7.6 x 6.6	8	384	
Grodan D 5.6 Large 3"	3 x 3 x 4	7.6 x 7.6 x 10.1	8	256	
Grodan D 6.5 Small 4"	4 x 4 x 2.5	10.1 x 10.1 x 6.4	6	216	2,592
Grodan D 8 Medium 4"	4 x 4 x 3.1	10.1 x 10.1 x 8	6	192	2,304
Grodan D 10 Large 4"	4 x 4 x 4	10.1 x 10.1 x 10.1	6	144	1,728
Grodan Hugo	6 x 6 x 6	15.2 x 15.2 x 14.2		64	512
Grodan Hugo (unboxed)	6 x 6 x 6	15.2 x 15.2 x 14.2			512
Grodan Big Mama	8 x 8 x 8	20.3 x 20.3 x 20.3		18	216

# Grodan Gro-Slabs

## GRO-SLABS

- Gro-Slabs provide the final stage for growing a large plant.
- Packaged in photodegradeable, UV-resistant sleeves for comfortable handling and algae prevention - so leave it on when growing plants.



## SINGLE PLANT SLAB

- Originally designed for a single plant, it is often used as a window sill garden for growing several gourmet herbs or salad greens.



Item	Size	Slabs/ Pack
Gro-Slab 6"	6" x 3" x 36"	12
Gro-Slab 8"	8" x 3" x 36"	12
Gro-Slab 6" Fat	6" x 4" x 36"	12
Gro-Slab 12"	12" x 3" x 36"	8
Uni-Slab	9.5" x 8" x 4"	16

# Grodan Loose Media

## GROW-CUBES & GROW-CHUNKS

- Known throughout the industry as croutons, these Grow-Cubes are lightweight and much cleaner than peat or coco based media.
- Grow-Cubes (1/2" square) and Grow-Chunks (3/4" square) easily mix with other loose media (i.e. clay rocks).
- Provides excellent aeration and optimum drainage (minimizing damage of user overwatering). Very popular in various brands of fabric pots and bucket systems.



## GRO-WOOL (WATER ABSORBENT)

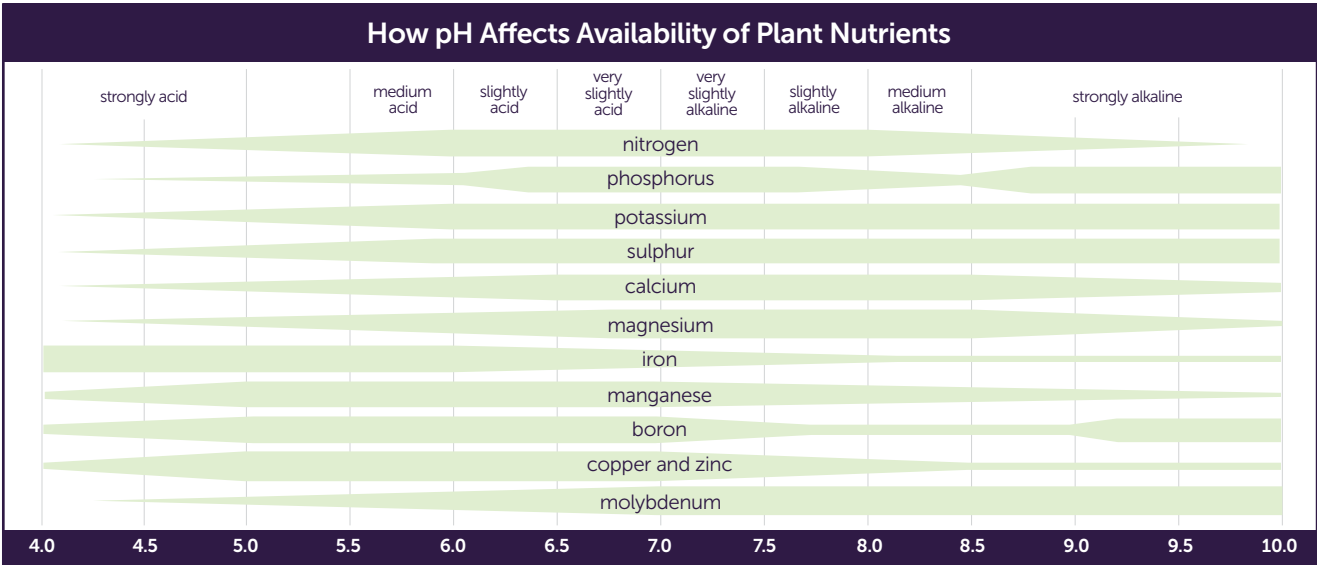
- Use alone or mixed with other media.
- Superb for outdoor containers.
- Retains water better and a stronger capillarity compared to sphagnum or coco peat.
- Does not compact over time.



Name	Cubic Feet	Weight	Bags/Case	Fill Std. 1-Gal. Pot
Grow-Cubes - Med.	1.0 Cu. Ft. (28.3 L)	2.28 lbs	6	Approx. 10
Grow-Cubes - Large	2.0 Cu. Ft. (56.6 L)	5.0 lbs	3	Approx. 22
Grow-Cubes - Loose	5.29 Cu. Ft. (150 L)	20 lbs	1	Approx. 57
Grow-Chunks™-Large	2.0 Cu. Ft. (56.5 L)	5.0 lbs	3	Approx. 22
Gro-Wool*	3.5 Cu. Ft. (99.1 L)	45 lbs	(compressed)	

\*Water-Absorbent Granulate  
1-gallon std. container holds 88 oz.  
2-gallon std. container holds 1.6 gallons  
5-gallon std. container holds 3.6 gallons

# Stay in the pH Zone



## Understanding Natural pH/EC Fluctuations

As propagated plants grow into larger Gro-Blocks, they will often experience a period of rapid growth. This growth will likely increase pH levels and EC (electrical conductivity) or what is sometimes measured in PPM. Check the reservoir often and adjust pH accordingly.

For a rapidly growing flowering plant, follow these guidelines:

- A lower nutrient strength (around 1,200-1,400 PPM) will force more water into the flower and thus produce bigger flowers.
- A higher nutrient strength (around 1,600-1,800 PPM) will produce smaller flowers but better quality.

GENERAL E.C. AND PPM TARGET ZONES		
E.C.	Plant Stage	Approx. PPM
0.5-1.5	PROPAGATION 2	50-750
1.5-2.0	MATURE PLANT STARVING	750-1,000
2.0-3.6	OPTIMAL	1,000-1,800
3.6-5.0	TOO MUCH	1,800-2,500
5.0 PLUS	PLANT DAMAGE	2,500 PLUS

# Growing healthy quality crops are as easy as

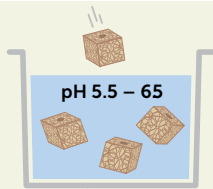


## with Grodan stone wool growing media



### Saturate

Saturate Grodan Starter Plugs and Cubes in a nutrient solution of roughly 1.5 EC and 5.5 pH with a course spray or submerged in the solution for up to 1 minute. Let drain.



### Take Cuttings

Choose equal length and diameter cuttings from new growth, no more than 14 days old, near top of plant. Apply rooting solution to cut only, preventing it from getting on the stem.

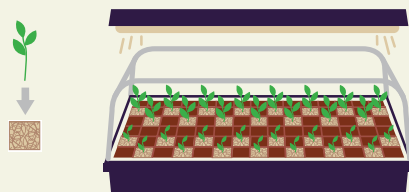
Insert stem 1/2 inches into the conditioned Grodan starter plug.

- For small batches, place Starter Cubes in a propagation dome.
- For large scale cutting production, use a humidity tent to create a more stable climate.

Monitor the wet weight. Once the wet weight reaches 50%, apply an irrigation with a nutrient solution of 1.5 EC and 5.5 pH. Drain excess to prevent mould, algae and disease.

### PROPAGATION TABLE FOR INDOORS: 18-22 HRS LIGHT PER DAY

Days	1-4	4-7	7-10	10-14
Humidity (%)	80-90	75+	65+	50-60
Temperature (°F)	75-80	75-80	75-80	75-80
Fertilizer (EC)	1.5 EC	1.5 EC	1.5 EC	2.0 EC



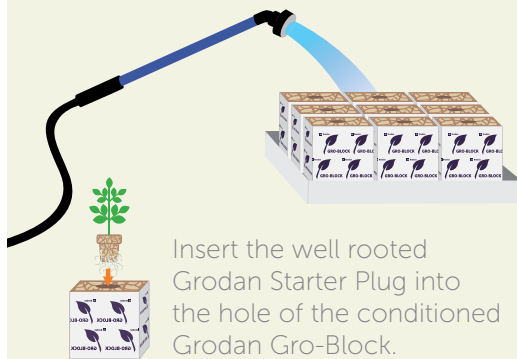
Monitor and keep wet weight records for each strain as different strains consume water at different rates.



### Transplant

When starters are well rooted with strong white roots emerging from the plug, transplant the cutting to a larger Grodan Gro-Block.

Saturate Grodan Gro-Blocks with a nutrient solution of 1.5 to 2.0 EC and 5.5 to 6.0 pH by watering wand / boom with several slow passes on a flood table, or submerge in the nutrient solution until they sink.



Measure the weight of the block at saturation and throughout the growing cycle. When the water content of the blocks is 55% to 65% apply the first irrigation.

Do NOT over saturate the Grodan Gro-Blocks to prevent algae, slow plant growth and disease pressure.

Do NOT allow the Grodan Gro-Blocks to dry back below 50% of wet weight to prevent slow growth, slow root development and inconsistencies between plants. Drying back beyond 50% of wet weight will make it harder to re-saturate the media and create dry spots in the blocks.



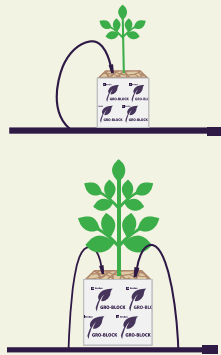
### Irrigation: Golden Rule is Transpiration Before Irrigation

Use a pressure compensated drip irrigation system:

Small Grodan Gro-Blocks:  
1 drip stake per block

Grodan Hugo: 2 drip  
stakes per block

Volume of irrigation should be 3%  
to 6% of growing media volume –  
For Grodan Hugo that is 100 mL  
to 200 mL.



Apply at least one irrigation  
within 1 hour after lights on

Second irrigation close to  
mid-day

Achieve 10 - 30% runoff of  
the daily irrigation for proper  
re-saturation and nutrient  
replacement

Adjust irrigation throughout the life cycle for strain,  
environment and root zone conditions.

- In Veg use smaller volumes of nutrient solutions (3%) at a higher frequency for vigorous leaf, stem and structural tissue growth.
- In Flower use larger volumes of water (6%) at lower frequency to steer growth generatively.

### Irrigation Volumes

Shot Size	% of Substrate Volume
Small	2%
Standard	3%
Large	4-6%

\*For drip irrigation. Suggested  
flow rate = 0.5 gph (2 lph)



# Why Choose GRODAN?



Grodan supplies innovative, sustainability stone wool growing media for professional greenhouse and indoor cultivation industries based on Precision Growing Principles.

Disclaimer: Neither Grodan nor its employees are cultivators or manufacturers of cannabis. Neither Grodan nor its employees advocate for or encourage the cultivation of marijuana. Grodan and its employees shall only engage with those state-licensed or state-approved marijuana business who maintain active licenses and constant compliance with the respective state and local licensing authorities.

Your Local Store

[grodan101.com](https://grodan101.com)



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**Grodan®**

Real Science. Real Results.