



## Tips on growing with rockwool

For several years essentially there was only one brand of horticultural rockwool available to hobbyist growers. This is quite a bit different from the situation in commercial greenhouse production whom on a world-wide basis there have been several brands available. The intent of this information is to better acquaint the hobbyist user with rockwool in general, so that he or she can make informed decisions about their rockwool purchases as well as easily adjust when switching between brands.

As a medium rockwool offers an almost infinite number of possibilities with regard to fiber length, fiber density, fiber orientation and additives (such as wetting agents) that can be used to alter it's characteristics. Typically manufacturers have based their decisions on what type, of product to make on their local markets. The resulting products take on the desired characteristics of the target growing region and different brands become known for their firmness, drainage, strength, etc., based on this. Since growing conditions differ quite a bit around the world, even under controlled environment greenhouse production, there is no such thing as an "ideal" horticultural rockwool product. This fact applies not only to differences in greenhouse growing conditions but also to hobbyists.

The current Energro brand products have a standard 5.5 lb per sq foot density for slabs, miniblocks and blocks, These products also are all made from "random" wool, i.e., the surface orientation is one in which there is a "serpentine" pattern that increases the bonding strength of the rock-wool fibers and provides greater compression strength. Block and miniblock fibers run vertically while slabs are produced in both vertical and horizontal form. Energro does not produce the softer "one year" slabs because the lack of rockwool density in this type of product results in soft spots, causing inconsistent drainage, compression that reduces air space and eventual breakdown of the rockwool prior to the end of the crop cycle. "One-year" slabs were introduced as a marketing gimmick and to justify high-priced "multi-year" slabs. They do not have a place in any good grower's garden.

The drainage characteristics of a rockwool product can be altered by changing one or more of a number of factors: fiber length; fiber diameter; fiber orientation (vertical or horizontal); concentration of wetting agent; tightness of random fiber; and wool density. It can be difficult sometimes to compare the claims of one manufacturer with another because simply having a particular fiber diameter or orientation on one product does not necessarily mean that the aeration, water-holding capacity or drainage profile of another is different between the two products. For example it is possible to make horizontal fiber slabs that are "drier" than "vertical" fiber slabs of exactly the same wool density (you simply make the slab taller, and go from a 3" to a 4" high product). The take home lesson: every other factor has to be exactly the same before you can say that a change in

wool density, fiber orientation or other characteristic automatically makes out product wetter, drier or better draining than another, And ultimately, the deciding factor should be how well your plants grow on the substrate! Of course, the fact of the matter is, that different brands of rockwool tend to be slightly different (for the reasons discussed in the first paragraph). How does a grower deal with this? First of all, talk with the manufacturer to find out how commercial growers use his or her product versus another. Do they irrigate more heavily or change the frequency of irrigation? Do they recommend different EC or pH ranges when growing in their products Are their products structurally different (eg., Energro's BAB 12 block) and therefore require a different irrigation strategy for maximum benefits? A little homework up front can save a lot of time and aggravation later.

Energro slabs and blocks use slightly higher density wool than Grodan yet they have exactly the same water-holding capacity (and therefore aeration) on a volume/volume basis. But because the Energro has a slightly higher wool density there is greater moisture-holding capacity and therefore flooding should be scheduled less frequently or the duration of flooding should be shortened. That is exactly what a commercial grower would do, recognizing that the two brands have different drainage characteristics.

Conversely, when using BAB-12 blocks in a flood system, you would increase, the duration and frequency of flooding (compared to 3" or 4" blocks) because of the much greater rockwool volume of the product and it's high profile. Again, this is exactly the way a commercial grower approaches irrigation scheduling, when growing a crop on a substrate with a larger volume, overall irrigation volume is increased Proportionately and when using a higher-profile product (eg., going from a 3" high to a 4" high slab) you have a higher column of rockwool that allows you to irrigate aggressively without fear of waterlogging the plants.

The BAB- 12 also is an excellent alternative for drip irrigation for growers who do not have the space for slabs. With the high-profile BAB the grower can irrigate more frequently without fear of being too wet and 3" and 4" blocks root very well on the BAB. Growers should take care in an ebb and flow system not to mix the smaller growing blocks with the BABs, however, because of the differing irrigation requirements. After transplanting cubes in GB6 or GB4 blocks, plants should be grown for whatever period of time is sufficient to establish strong root systems before putting them on top of the BABs. Of course, if the grower is using drip irrigation, the block can be put on top of the BAB immediately after transplanting the, cubes and the roots will follow the moisture down and into the larger substrate with no problem. Another interesting tip: it has been widely assumed that horticultural rockwool must be pre-soaked in a solution that lowers the pH of the substrate prior to use. This is based on a bit of an "urban legend." Rockwool is a "bonded" product. A bonding agent is used in production to ensure that individual fibers stick together and do not fall apart under normal use conditions. Rockwool is inert and has a neutral pH, The binder used in the rockwool has a high pH, **BUT THE ONLY WAY TO REMOVE THE BINDER FROM THE ROCKWOOL IS TO BOIL IT!** Hopefully you do not boil rockwool prior to use! The only thing that occasionally might be helpful would be to soak blocks (not propagation cubes) in a dilute nutrient solution so

that there is no ionic or osmotic effects during initial flooding or dripping due to the differences between the regular water and the nutrient solution.

Another Tip: depending on the brand of rockwool and the type of product (block, slab, etc) being used the EC and pH levels at the rockwool/root interface may be slightly different, Why? Differences in water-holding capacity and/or frequency of irrigation will affect the relative concentration of nutrients in the substrate. Plants, of course, do not take up every nutrient equally at a given pH and therefore changes in the amount of a given nutrient near the roots will result in differences in uptake with different rockwools. That's why you irrigate with nutrient solution rather than pure water when there is an EC imbalance. You want to maintain (as closely as possible) the appropriate concentrations of all of the nutrients to avoid large EC and pH fluctuations. So remember to monitor EC and pH carefully when you switch from one brand to another to ensure that you are maintaining the correct nutrient concentration.