My AquaFarm™ Aquaponics System

Model JER 17.7,8_16

By Hughey Aquafarm

Growbed Media Types

Before beginning assembly we should address media types. You will need some sort of growbed media to complete assembly of the **My AquaFarm™ Aquaponics System**. Everyone will tell you the product they sell is by far the best that can be used. There are positives and negatives with each type. I believe you have the intelligence to decide for yourself so I will simply explain the pro's and con's from my perspective and you make the decision that works best for you. As long as you make a wise decision the media you choose will work well in this system.

All media types used in an aquaponics system share one thing in common. They should not contribute to pH conditions of the system either up or down. Gravels made from limestone should not be used under any circumstances as they can lead to impossible pH levels to correct for proper plant nutrient uptake and fish health. An easy way to tell if it's going to be a problem is take a sample of the media you're thinking of using and half fill a clean glass jar with it. Test the pH of your water and then fill the jar and let sit overnight. Test the water again in the morning to see if there was a change. If the pH changed much at all, do not use the media. Find another source. Obviously materials like crushed concrete will have an adverse affect on your pH. If there's any question about the toxicity of something you want to use, simply don't use it!! Remember, you're growing food for your family. Good common sense should prevail here.

River Pea Gravel

River pea gravel is usually locally available and doesn't require a lot of expense shipping. It's heavy though and may be hard to handle for those of us who are not as fit as we used to be. There is a common misconception that gravel can dry out between cycles. I have never found this to be true and have actually shut my system off for an entire winter once (from Nov. - Feb.) and found plants still growing (albeit slowly) through the entire winter from the moisture held by the bio-solids and root mass in the growbeds. While they did reduce in moisture from a cycling system they by no means totally dried out even after months of non-use. Many use this myth to try to sell you their products. While there is no doubt products like Hydroton expanded shale or expanded glass can and will hold moisture better, the statement that gravel dries out completely demonstrates they either simply don't have any experience with gravel media or have chosen to pass along misinformation. We've been using gravel media since 2003 in our systems at our home. The one drawback, in my opinion and experience, to gravel is it's HEAVY!! Make no mistake, at 110lbs./cubic foot this stuff will add an extreme amount of weight to the overall system. This is not to be considered lightly in any way!! Once again, for the safety of you, your loved ones and others, make sure you are providing a very substantial foundation for any aquaponics system. The weight does work for you in one way though. It provides, in my opinion a better foundation for your plants as they grow. You will need trellising anyhow, but having a heavy base for roots to grip to is a benefit. Concerning gravel size, there is a lot of

opinion out there as to the proper size and some claiming to be experts on the subject. Whatever gravel you use remember the primary function of growbed media is to provide real estate for bacterial to live on. Smaller size pebbles equate to more real estate and a larger bacterial colony. You make the decision that works best for you though. We use 1/4”- 3/8” river pea gravel here on our farm to date and it has worked wonderfully for us. Currently it cost's us about $25.00 USD to fill this system with gravel locally available at $35.00/ton.

Hydroton

Hydroton is a very popular media being used in aquaponics systems by many nowadays. I personally have never used it but have had conversation with many who have. Of it's benefits the two that stand out to me it it's water retention ability and light weight. This allows a system to be installled in places where gravel may not be feasible due to it's weight. One should always make very sure to determine the load capacity of a structure before attempting to install any aquaponics system!! This means seek the services of a professional engineer concerning the location if in doubt. It will take about 500 Lbs. Of Hydroton to fill this system (about 1200lbs less than gravel). A couple drawbacks are, it's expensive and, ironically, it's weight. At the cheapest prices I can find online the cost to fill this system is over $220.00 USD + shipping. That's a lot of money for many of us. The light weight while nice for system location is a problem when securing plants (according to information from friends who use it). As with gravel, the choice it yours. Many are using it successfully.

Haydite/Stalite

Haydite/Stalite are expanded shale products that compare favorably somewhere in the middle of gravel and Hydroton. Haydite/Stalite have a weight a little over half of gravel but when comparing cubic feet have a price only slightly higher than gravel. At the writing of this document I am looking seriously into this media. I have 2 close personal friend using this material and it is working beautifully for them. Haydite/Stalite also has the benefit of water retention and a massive amount of micro-pores for bacterial colonization. It really sounds like a win win to me. The random shape of this media help it to interlock and create a good base or plants to grip to. One drawback is it may or may not be locally available and may have to be shipped to your location. We will be looking into this one for sure on our family farm as well as making it available in the future from our website.

Other Media Types

There are several media types used by others such as lava rock, pumice, etc... You'll have to do research on these for yourself to determine if these are a consideration for you. My experience has been that perlite, vermiculite and coir is very hard to keep in the growbed of a flood and drain aquaponics system and some can actually harm your fish. I've tried them (as well as many other types, even floor dry) and did not have satisfactory results. The three mentioned above are my personal recommendations.

All media, no matter what you use must be clean before installing into your system!!

A final note. When purchasing medias for your system, if not purchasing try to find bulk dealers like large landscape supply companies, aggregate suppliers for the concrete industry, septic tank installation companies (that's where I get river pea gravel cheap) and such.