BB2SJ Aquaponics Pilot Plant

Phase 1 Part 6. **Germination**

Item	Scope of Work

6.0	To design effective germination procedure for consistent supply of young plants for transplanting to grow bed.
	
	Your scope of work shall include followings:
	
	• You shall propose what plants are suitable for:
	  ◦ Media Grow Bed.
	  ◦ Deep Water Culture.
	• You shall submit methodology for implementation
	• Monitoring procedure
	• Allocation of responsibilities.
	• Material inventory

6.1	To present & obtain approval from officers on overall design
6.2	Procurement of material, seeding, monitoring, record keeping.
6.3	To interact and liaising with other relevant project team members to monitor & to propose improvement or modifications.

** Please refer to Master Program for timing of execution for each phase.*

For reference:

Plants that will do well in any aquaponic system:

•any leafy lettuce, pak choi, kale, swiss chard, arugula, basil, mint, watercress, chives, most common house plants

Plants that have higher nutritional demands and will only do well in a heavily stocked, well established aquaponic system:

•tomatoes, peppers, cucumbers, beans, peas, squash, broccoli, cauliflower, cabbage

These are of the other crops that Nelson and Pade, Inc.® has grown in aquaponics:

•bananas, dwarf citrus trees: lemons, limes and oranges, dwarf pomegranate tree, sweet corn, micro greens, beets, radishes, carrots, onions, edible flowers: nasturtium, violas, orchids

STARTING PLANTS IN, AND FOR, AQUAPONIC SYSTEMS

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By: Tawnya Sawyer

I was thinking this morning that the perfect time to start some more seeds for my aquaponic growing system will be in front of the TV watching the Super Bowl or, more accurately, the commercials that are occasionally interrupted by football. Then I started thinking about all the different choices that were out there for starting plants in aquaponics, and what the pros and cons of each are, and I thought this might be a good topic for this blog, so here goes.

Broadcasting seeds – clearly the easiest way to start seeds in any environment, dirt or dirt-less, is through "broadcasting" or tossing the seeds evenly over the growing surface. Yes, this is even possible in a media based aquaponic growing system. I have found that this technique works well for lettuce and carrots, and would probably work for other small seeds that are typically planted in the early spring and are adapted to being very wet (radishes, for example, but my family isn't into radishes so I can't speak from experience).

Germinating seeds in a wet paper towel – the next category of seeds in my mind are the seeds that still germinate very quickly, but are larger than lettuce. This includes beans, peas, melons, and cucumbers. I have found that planting them directly into the grow beds doesn't work very well. They don't germinate as reliably as I know they can and because they are longer term plants I actually want to pay some attention as to where they are positioned in the bed. But because they germinate and grow so quickly it seems silly to waste grow media on starting them. These are my candidates for the old, first grade trick of starting seeds in wet paper towels. Once the seeds are arranged in a wet paper towel, seal them in a large zip-lock bag and check them daily for sprouting activity. Once you see a decent root (1" or more) then gently place them in the grow media to a level where the root will get wet in your flood cycles.

Seed starting using a media – I start seeds in media when they are either harder to germinate than the seeds above (I'm thinking of some greens like spinach and chard), or they need a little more love and nurturing before they go into the grow bed (like tomatoes and peppers). But then the question becomes what media to use. Well, not surprisingly, I have some opinions about this.

- Rockwool – this is the default seed starting media for hydroponics. Pros – completely inert, so you will have a very sterile seedling with no chance of fungus or insects being harbored. Cons – needs to be pH balanced and is made of a spun rock material that is unpleasant to work with.

- Peat sponges – Here I'm referring to Rapid Rooter, Sun Leaves Super Starter and other similar products that are based on peat, latex, and assorted "bio-yummies". Pros – no pH adjusting needed, they are largely bio-degradable, they grow well and they are pleasant to work with. Cons – they have been known to be a breeding ground for fungal gnats and they can be pricey (but are worth it).

- Vermicompost – I was watching the Olomana Gardens Aquaponics and Permaculture video recently and he was advocating starting seeds for aquaponics in pure vermicompost. This is essentially what Growing Power is doing as well. I would love to try this when I have access to a steady supply of vermicompost. I'll be it works great.

Cuttings – don't forget that cuttings are a great way to go if you already have access to plants. Cuttings root exceptionally well in aquaponics, especially tomato and peppers, but you might also want to try using your aquaponic system to generate some roots on whatever cutting you take from the plants in the rest of your garden. Works better than rooting hormone, in my experience.

Buying plant starts – And finally, it is perfectly ok to have someone else start the plants for you. To ready a potted plant start for your aquaponic growing system you need to remove the plant from the pot, shake off the excess dirt, then run the plant under water to further remove as much dirt as possible from the root system. I've found that swishing the roots in a solution of water with Maxicrop helps prevent transplant shock. Also, make sure you thoroughly check store bought plants for bugs before planting.

Happy Seed, uh, I mean Super Bowl!