

Getting Started Checklist

The following is a basic checklist designed to get you thinking about some important considerations when planning your aquaponic system. This checklist is for home, hobby and school scale systems such as our Aquabundance or Space Saver series which have 100 gallon fish tanks or larger. This checklist does not comprehensively cover the planning required for small farm or commercial scale systems.

Whether you are planning to build your own system or purchase a complete system we recommend you go through this list to help you plan your system accordingly. Gathering this information is extremely helpful for our team when we are assisting customers so we can ensure that we are providing the best solution for your needs.

Personal Considerations

- **Have you attended a reputable aquaponics training course?** Whether you take a course from us or from someone else we strongly recommend getting some hands on training with instructors who have been actively growing with aquaponics for at least three years. It's important to gather as much reliable and trusted information as possible before making the commitment to building or purchasing your own aquaponics system.
- **Are you a Do-it-Yourselfer? Or do you prefer purchasing something that is already properly designed and well proven?** This is an important consideration before getting started in aquaponics. DIY aquaponics can be extremely fun and rewarding but can also take a long time as you may be trying to figure things out on your own. If you want to get up and running quickly you may be better off with a proven system with instructions and technical support. Either way, we have complete systems or individual components available for which ever path you choose.
- **Are you frequently traveling and may be away from your fish and plants for extended periods?** While some things can be automated, a typical system will often need to be attended to daily even if just for a few minutes. If you are not going to be around, it's a good idea to make sure you have a trustworthy person who is trained on how to take care of the system in the event you are away.
- **What are your goals and objectives for your aquaponic system?** This may spawn several other questions such as: Are you intending to grow a wide variety of food on a weekly basis for your family? Are you just experimenting and tinkering? Are you intending to eat your fish? In other words why are you doing this in the first place? All of these questions and more should be thought through so you can plan your system accordingly. This is also important information for us to know so we can help make sure you get the best system to meet your growing goals.
- **Do you have funds available to purchase the equipment needed both at the outset as well as ongoing supplies such as fish feed and supplements?** Depending on your goals and objectives the size system you need could range from a few hundred dollars to several thousand dollars. The scale of the system and your management of it will also require ongoing financial support to cover costs of utilities, supplies and additional expansion if desired.

Planning your physical space

- **How much space are you dedicating to your aquaponic environment?** This is a question that includes not only the size of the system but you will need the ability to move around it easily so you can access the fish tank and grow beds. Having a small work surface is always handy and also planning for expansion is important. You'll definitely need some extra room to show your curious friends what you've been up to as well! Use our aquaponic system space planner to see some of our systems in different configurations.
- **Will your floor support the load of your aquaponic system?** Larger home systems can be extremely heavy. One gallon of water weighs 8.5 lbs so a 200 gallon tank with two media beds and a sump tank will weigh well over 1 ton. Larger systems such as our Aquabundance Modular line are best suited to be on ground level and on a concrete pad or other structurally reinforced floor system that can be the weight.
- **Can your floor easily be cleaned when it gets wet?** Notice we didn't say "if" here. Water will get on the floor at some point whether it's from a real accident such as over filling the system or the fish splashing around when they are eating. It's a good idea to place your system on a surface that is easily cleanable and one that you don't mind getting wet. In other words not on your living room carpet.
- **Do you have access to fresh water nearby?** Your system will regularly need to be topped off with water due to natural losses through evaporation and transpiration. It is nice to have a convenient source of fresh de-chlorinated water (more on this later) located nearby for system fills and top offs.
- **Do you have a wash basin nearby?** This is a nice to have item but pretty handy when you are washing produce, nets, test equipment, and most importantly, your hands.
- **Do you have one or more GFI outlets accessible?** We recommend using GFI protected outlets or purchasing our Wet Circuits Power Strip to protect from the possibility of electrocution if water and power were to mix. Locating outlets off the floor and above the water line is highly recommended.
- **Is the electrical service reliable?** You may take this for granted if you rarely have power outages in your location but this is a major concern for people in many parts of the world and can have a significant impact on your system. Having reliable backup power or other alternatives in the event of frequent power outages is an important consideration to plan for. See our line of AquaBackup solutions for some simple systems that could save the life of your fish.
- **Is the system in a secure location?** If you have small children or pets you should consider the potential hazards to both the system and your children or pets that could be present. The risk of accidental electrocution or drowning is real if pets or young children were to be climbing around the system. Tampering with the system could also create other unpleasant conditions such as the death of your fish and plants.
- **Will your system be outdoors?** Depending on your climate you may have the opportunity to grow outdoors for most or all of the year. You may need to secure your system from natural predators such as raccoons who would love to eat you fresh fish and they're not picky between Tilapia or your prized koi. We've heard these stories far too often.

Environmental Considerations

- **What is your water source?** Understanding where your water is coming from and what quality water you are receiving is extremely important. Our Aquaponic Gardening Book and online courses cover this in much more detail. In short, you will need to provide a source of dechlorinated water and it is a good idea to have your source water tested for any potential toxins, hardness levels, pH, heavy metals, and other contaminants. This will allow you (or us) to determine a proper filtration system to ensure good water is being delivered to your system.
- **Does the environment have adequate ventilation?** It's important to ensure that there is a regular exchange of fresh air in your environment in order to manage relative humidity levels, temperature and other factors that will affect the quality of your plants.
- **Does your environment require heating or cooling?** Depending on your room, building and climate you may need to provide both heating and cooling solutions to manage air temperature and optimize the conditions for plants and your system in general.
- **Do you have a source for heating and cooling?** There are a variety of ways to heat and/or cool your environment that need to be researched and considered such as natural gas, radiant heating, geothermal, evaporative cooling, shade cloth etc...
- **Will you need to heat the water?** This is dependent on the preceding question and also the type of fish you intend to raise in your system. A water temperature between 66 and 74 degrees Fahrenheit is typically a good range but again that is highly dependent on your choice of fish. We can advise you on this if you need further assistance.
- **Do you have a source for heating the water?** There are several options for heating such as electric heat, natural gas, propane, wood, solar thermal and other methods. Heating may require a combination of methods.
- **Do you have adequate natural sunlight available for your plants (6 to 16 hours a day)?** If you are growing in your basement or garage you will need to have artificial lighting. We have several good products and FAQs on lighting systems for aquaponics on our website. Depending on your climate you may even need artificial lighting if you are in a greenhouse as well. Your building, climate zone, seasonality, plant selection, system orientation, and your overall growing goals for the system are all considerations.

The Living Elements

- **What Plants do you intend to grow?** You may not be sure right away which is ok. However your choice of crops can influence the type of system you end up purchasing. Media beds are a staple of our AquaBundance systems and can grow a wide variety of crops easily. In general, media beds are the most versatile and work well for longer term fruiting crops such as tomatoes, peppers, or cucumbers. Leafy greens such as lettuce varieties, Kale and Chard also work well in Deep Water Culture troughs. It can be nice to have a combination of both DWC and media bed in the same system. Understanding the type of plants you want to grow and when you want to grow them will also impact your choice of lighting systems, temperature and nutrients requirements among other things.

- **What Fish do you intend to raise?** Your choice of fish species is an important one and there are several things to consider. What species are locally available in permitted? Do I want to raise edible fish or not? If you are not up for dispatching and eating your fish perhaps decorative Koi might be a better option. Fish are classified by temperature and each species has a particular temperature range that is ideal. For example, Trout are cold water and like temperatures in the 55F range ranging to 65F at the highest. Tilapia, on the other hand, are a warm water species desiring temperatures between 72 and 82 degrees. Your choice of fish will influence the target water temperature in the system and if whether or not you need to heat the water. There is much more to learn about fish in aquaponics and that's why there's a whole chapter in the Aquaponic Gardening Book and several other resources to study on fish on our website as well.

System Components & Supplies

If you are planning on building your own system then the following components will be essential. Our complete AquaBundance Systems will contain all of the major components you need with a few additional options. We often think about the components of an aquaponics system as the hardware and software. The hardware represents the materials and equipment needed to physically build the system. The software represents the supplies needed to manage and optimize the system on an ongoing basis. Again, this list is designed to be a simple checklist to get you thinking about the components and supplies you might need. Some things are optional depending on your system design and requirements.

Please refer to the Aquaponic Gardening Book, our online courses or come take one of our in-depth classes where we discuss system design in great detail. We also offer design and consulting services to help you plan your system from scratch.

The Hardware (materials and equipment needed to build your system)

- **Fish tank(s)**
- **Grow Bed(s)** - Media beds, DWC, Wicking beds.
- **Grow Bed stands** - Something to support the weight of your grow beds, see our AquaArchitect line of modular grow bed stands.
- **Sump tank** - Optional depending on number of media beds.
- **Plumbing pipe and fittings** - Will vary depending on number and type of grow beds, system layout and other factors.
- **Siphons or Stand pipes** - Components required for flood and drain media beds, we recommend bell siphons and use them in most all of our systems.
- **Water Pump** - Size depends on desired tank exchange rate, pump head height, number of grow beds, plumbing lengths, widths and number of fittings.
- **Aerator, airlines and air stones** - For fish tank and DWC beds.
- **Liner** - Optional if you are creating your own DWC troughs or custom tanks.
- **Grow Lights** - Optional depending on your location and available sunlight.
- **Heating Elements** - Optional depending on your target water temperature, fish species, ability to maintain consistent temps etc.
- **Grow Media** - Expanded clay, shale or other inert media

- **Vertical Systems** - Optional if you want to use vertical space more effectively.
- **Monitoring Systems** - Many options here depending on your situation and desire to receive alerts and maintain remote control of system parameters.
- **Backup Systems** - Optional but recommended in the event of a power failure a backup system can maintain power and could save your fish.
- **Timers and Controllers** - For lighting, pumping and other systems requiring intermittent operation.
- **Filtration System** - Typically an active carbon filter or de-chlorination solution to de-toxify the incoming water from chlorines and chloramines that can kill your fish and bacteria.

The Software (supplies needed to manage and optimize your system)

- **Water Quality Test Kit** - Our Master API kit is a simple affordable kit to test critical water quality parameters.
- **Cycling Kit** - A source of ammonia and nitrifying bacteria required to initiate the nitrification cycle and prepare your system for the safe introduction of fish.
- **pH Adjusters** – Adjusting pH in aquaponics is a necessary part of managing a system and there are specific pH adjusters that are only suitable for aquaponics. See our line of AquaUp and AquaDown products for more information.
- **Testing and Monitoring Equipment**– There are a variety of water quality parameters that are important to monitor beyond what the Master API test kit provides such as temperature, iron, dissolved oxygen to name just a few.
- **Fish Food** – You’re going to need a supply of fish food. We offer a certified organic fish feed as well as traditional feeds. Feeds are offered in specific pellet sizes and are designed to meet the nutritional requirements of the fish at various stages of growth. [Learn more](#)
- **Fish Care Products** – Fish nets, therapy solutions, thermometers etc.
- **Gardening Supplies** – Items such as pruning shears, gloves, sprayers and more.
- **Pest Management Supplies** – There are a variety of pests that can impact your plants and there are very specific aquaponic safe products that should only be used in your system.
- **Seeds and Seed Starting Supplies** – You’ll need a regular supply of seeds, germination trays or a seed starting kit to help your plants get off to a good start.

Plants to Grow

Greens	Herbs	Flowering/fruiting	Root Crops	Microgreens
DWC, media, towers	DWC, media, towers	Media beds, NFT, towers	Wicking Beds	Nursery deck, fodder system
<ul style="list-style-type: none"> • Leaf Lettuces • Chards • Kales • Mustard • Collards • Bok/Pok Choi • Tatsoi • Cabbage • Arugula • Celery 	<ul style="list-style-type: none"> • Basil • Mint • Thyme • Cilantro • Sage • Watercress • Oregano • Parsley • Sorel • Rosemary • Stevia 	<ul style="list-style-type: none"> • Tomatoes • Peas • Beans • Squash • Zucchini • Broccoli • Peppers • Eggplant • Cucumber • Strawberries • Lemons • Figs 	<ul style="list-style-type: none"> • Carrots • Turnips • Radishes • Onion • Potatoes • Parsnips • Beets • Kalirobi • Spinach • Celery • Broccoli 	<ul style="list-style-type: none"> • Pea shoots • Sunflower • Wheatgrass • Barleygrass • Alfalfa • Kamut • Oatgrass • Corn • Beets • Herbs • Mustard

Pest Management

Always ensure fish and bacteria safe, organic doesn't always guarantee its safe

- **Soft Bodied insects** – Vinegar and water, Olive oil, peppermint oil, Dr. Brommer's Castille soap, Azadirachtin (from the Neem tree, not neem oil), Botaniguard (*Beauveria bassiana*), Mpede, Kaptain Jacks, Safer, Kapow, Liquid Ladybug, Sucrashield,
- **Caterpillars and Slugs** – BT (*Bacillus thuringiensis*), DiPel, Hydrated Lime, beer traps
- **Misquotes, midge and fungus gnats** – BMC (biological Misquote control) – pour into water
- **Powdery Mildew** – Serenade (*Bacillus subtilis*), Sulphur burner (*greenhouse only*), Mpede

Do Not use anything with Copper or Pyrethrum

Screens and barriers to entry for animals, birds, reptiles and other larger "pests"

Fish Species

- Aquarium Fish – 1" per gallon, all freshwater varieties
- Warm water fish to cohabitat 68° – 75° – Tilapia, Catfish, Bluegill, Carp, Koi, Goldfish, Perch
- Hybrid Stripped Bass – grow well in temps from 65° to 75° but don't cohabitate well
- Cool Tolerant fish – around 65° – Catfish, Bluegill, Carp, Koi, Goldfish, Perch
- Cold loving fish – 55° – 60° Trout, difficult to maintain in a greenhouse in the summer

Determine your states licensing and import requirements, find a good local source of fish, request a fish health certificate