

Aquaponic Farm Equipment & Tool List

This list is provided as a general reference and checklist for major components that would be necessary for building a commercial aquaponics farm. This list can be used to aid you in planning, designing and building your own farm.







Item	Description	Quantity	Notes
Fish and Filtration System			
Fish Tanks	Main tanks for rearing and growout		
Mechanical Filtration Tank(s)	Tank or device for solids removal		
Biological Filtration Tank(s)	Tank or device for biological filtration		
Bio Filter Media	Biomedia with specific surface area per unit volume for TAN to NO ₃		
Tank Covers	Shade cloth covers for fish and filtration tanks		
Tank support stands if needed	Fish tanks or conical tanks may need support stands for elevation		
Sump Tank	Low pump for water collection and pump		
Main system pump	Submersible or suction pump for main flow to fish tanks		
Backup Pump	Spare pump on hand in case of primary pump failure		
Misc Plumbing	Bulkheads, uniseals, PVC pipe, fittings and valves to connect tanks		
Deep Water Culture System			
Trough Framing Materials & Hardware	Lumber, Metal and Fasteners to create trough for liner and water		
Trough Liner	Food safe liner for water containment in trough		
Raft Boards	Floating raft boards for plant production		









Insulation Panels	Insulation for underlayment and sidewalls to contain heat loss		
Air Diffusers & tubing	Diffusers for aeration in DWC trough		
Misc Plumbing	Bulkheads, Fittings to connect to supply/return and air diffusers		
Nursery system			
Framing/Support materials	Materials to support flood table such as cinder blocks, wood or metal		
Flood table/deck	Trough to contain and flood and drain seedlings		
Nutrient Reservoir	Tank for nutrient solution and pump		
Pump	Pump to move nutrient solution to flood table/deck		
Timer	Timer to run pump at programmed intervals		
Misc. Plumbing	Plumbing pipe, fittings and valves to supply and return water in nursery		
Heater	Heater to maintain water temperature		
Air pump, diffusers & tubing	Air diffusers, tubing and air pump (if not connected to main pump)		
Media Bed System			
Media beds	Containers to hold growing media		
Grow Media	Inert growing media such as LECA or expanded shale		
Support stands	Structure to hold growing beds such as cinder blocks, wood or metal		
Misc. Plumbing	PVC pipe, fittings and valves to supply and return water		
Aeration System			
Air Blower - Primary	Regenerative blower to provides oxygen for system		
Air Blower - Backup	Backup in case of failure to primary		
Pressure Switch	Detects loss in pressure to autostart		




	secondary blower		
Air Diffusers	Distributes oxygen into the water		
Air Distribution Plumbing	Bleeder valves, check valves, flow valves, piping and fittings		
Monitoring & Controls			
Controller	Central Controller for managing probes, sensors, alarms		
Auto Dialer	Callout for emergency alarms - (could be part of controller)		
Sensors	Specific sensors for temperature, high/low water, flood, flow, DO, other		
Lighting (Optional)			
Grow Lights	Artificial lighting to plants		
Lighting Supports	Support structure or hangars		
Controller(s)	Supports the power connection for multiple fixtures		
Timer(s)	Can interface with lights or controllers for timing of on/off cycle		
Light Movers	Used to moved lights back and forth reducing number of fixtures needed		
Auxiliary Systems			
Water Heater	Unit to supply and exchange heat source into water if needed		
Source Water Filtration	Source water filter system to remove toxins, disinfectants and metals		
Quarantine Tank(s)	Separate tank and filtration system to manage new arrivals or sick fish		
Purge Tank(s)	Separate tank and filtration system to purge fish before harvest		
Fresh Water Storage Tank(s)	Water storage tank for top offs or emergencies		
Breeding Tank(s)	Tank and components for breeding fish		

Compost Brewer	Brewer tank and stand for aerating solids and creating compost teas		
Backup Generator	Provides power in the event of a loss of power to building or equipment		
Wicking Bed	Raised bed growing root crops		

Tools and Supplies List

Item	Description	Quantity	Image
PVC Primer and Cement	For gluing PVC pipe and fittings	1 or more	
Teflon Tape	For all threaded PVC connections	1 or more	
Pipe Cutters up to 2"	Hand held pipe cutters for PVC	1	
Reamer (debur)	Removes sharp edge from PVC pipes and plastic	1	
channel lock pliers	General purpose pliers for holding pipes and tightening fittings	1	
Strap wrench	Great for turning larger diameter bulkheads and gripping PVC pipes	1	

Hook Spanner Wrench	For tightening larger diameter bulkheads	1	
utility knife	For cutting liner and other general purpose cutting	1	
rubber mallet		1	
level	For leveling tanks, support stands and troughs	1	
cordless drill - driver	General purpose drill for screwing lumber together or using hole saws	1	
Hole Saws	Various sizes will be needed for cutting holes for uniseals and bulkhead fittings through tanks	Several sizes	
portable circular saw	Handy for cutting large pipes and lumber on the move	1	
Chop Saw	For cutting 3" or larger diameter PVC, lumber or metal	1	

measuring tape		1	
Jigsaw	Good for cutting insulation panels	1	
Sump Pump	Good for pumping water between tanks	1	
Hose	Used to move water around with sump pump	1	
extension cord with three way splitter		2	
gloves - goggles - ear buds	General safety equipment, per person	1 ea	
first aid kit	Must have when using tools	1	
multihead screwdriver	General purpose screw driver	1	
sharpie	Good for marking PVC pipe fittings	1	
Construction Pencil		1 per person	
Bar of soap in ziploc bag	Used for slipping pipes through uniseal fittings	1	
Rags		10	
Zip Ties	Great for all purpose attachment and support	100	
Shop vac		1	
Push Broom		1	
Trash Can/Roll off		1 or 2	