

Aquaponics Site Self-Assessment Form

Site Name: _____

Date: _____

Products Growing: _____

(Leafy greens risk profile; presence of fish)

This document describes basic elements of food safety practices to be considered during the process of growing, harvesting, washing, packing, and transporting produce grown in an aquaponics system. This checklist is designed to be in common sense language and for the aquaponics grower who is starting to develop his or her food safety practices, protocols, and plan.

The Unsatisfactory and Satisfactory conditions are examples of what is good to be doing at the farm and what is not good to be doing. Satisfactory is not EVERYTHING but an example of what are good things to be doing. This is meant to be a basic checklist to guide you through your food safety practices to get started, not an inclusive list or regulatory checklist.

1. General Systems Review				
Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Action(s) for Improvement. Use this space for comments.
1. A designated person trained in food safety (GAP/GHP) is in charge of implementing and overseeing the food safety program.	<ul style="list-style-type: none"> No person designated. Person has not attended food safety training. 	<ul style="list-style-type: none"> Named person is in charge of food safety program and has required knowledge of GAP/GHP and has attended GAP/GHP training. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
2. All production, harvest, and process policies and procedures are planned and documented ; practices are safe and hygienic.	<ul style="list-style-type: none"> No written Food Safety Plan No recordkeeping system 	<ul style="list-style-type: none"> A clear, concise Food Safety Plan with a cover sheet and a complete set of well-structured SOPs. Logs or journal for appropriate steps (describe in detail for Management Areas) 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
3. Visitor Protocol exists and used.	<ul style="list-style-type: none"> Visitors come and go and are not monitored while at site. No visitor protocol 	<ul style="list-style-type: none"> Visitor policy developed and enforced. Visitors wash hands and wear hair nets Visitors do not touch water or taste produce Visitors illness policy developed and enforced (and written) Visitors use footbaths, dedicated greenhouse shoes or boots, or paper booties. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

		<ul style="list-style-type: none"> ● A no jewelry policy 		
4. Pre-operative inspection or daily checklist.	<ul style="list-style-type: none"> ● No standard operating procedure to assess workspace prior to start of daily operations ● Dead fish 	<ul style="list-style-type: none"> ● Defined standard operating procedure for pre-operative evaluation including action steps ● Procedure for removing and disposing of dead fish and plant debris. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
5. Sufficient separation of pests or domestic animals and operations	<ul style="list-style-type: none"> ● Improper drainage; standing water (pest attractant) ● Proximity to farm animals or lacking barriers to animals. ● Pets allowed in production/packing areas 	<ul style="list-style-type: none"> ● Processes for keeping pests away from operations ● Farm animals fenced (in and out). ● If there are farm animals, detailed manure handling and sanitation SOPs and policies in place. ● Minimal to no evidence of pests/domestic animal presence 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
6. Areas outside of AP greenhouse/buildings are kept clean and grass/brush is mowed to minimize bird, rodent and other pest populations that might move into buildings.	<ul style="list-style-type: none"> ● Clutter and debris is present ● Lack of regular upkeep as evidenced by types of weeds and amount of debris. ● Bird or rodent nests on or in buildings. 	<ul style="list-style-type: none"> ● Outside area free of debris ● Outside areas tidy; mowed, swept, or rocks without weeds. ● No evidence of birds or rodents 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
7. All water used for hand washing, produce rinsing and washing, food contact surface cleaning and sanitizing, harvest tools and equipment cleaning, and spraying is potable.	<ul style="list-style-type: none"> ● No potable water available ● Regular water tests show bacteriological contamination as defined by the US EPA Clean Water Act ● Improper plumbing that could lead to contamination ● Using AP system water for any other purpose. (I'm unclear about the meaning of the last one) 	<ul style="list-style-type: none"> ● Potable water available ● Test for E. Coli, Listeria, coliforms, and Nitrates annually in well water. (check with your state, auditor, or certifier) 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

2. Worker Training, Health, and Hygiene

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Action(s) for Improvement. Use this space for comments.
1. Worker training programs for personal hygiene, and food handling, and have the requisite knowledge or credentials and training to prevent food borne illness.	<ul style="list-style-type: none"> ● No credentialed trainer ● Workers untrained ● No consistent ● Training provided by different people sporadically ● Minimal knowledge or skills demonstrated 	<ul style="list-style-type: none"> ● All workers have received Food Safety training (e.g. a video, on-farm workshop, demonstration by designated trainers/employees) every 6 months? ● Trainers/employees conducting food safety training must be trained and retrained 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
2. Workers with injuries or illness do not participate in food handling processes nor touch food contact surfaces or equipment.	<ul style="list-style-type: none"> ● Smoking ● Loose hair ● Open infections ● Eating ● Alcohol or Drugs ● Acute illness, including diarrhea, vomit, fever, rash ● Loose bandages 	<ul style="list-style-type: none"> ● Wounds are satisfactorily covered; ● First Aid Kit easily well stocked, and easily accessible at all times ● Workers are healthy ● Workers’ hands are washed prior to touching produce or food contact surfaces ● Worker Illness Reporting Doc 	Create and add a worker training verification log with specific issues relevant to AP operations, eg. workers stuck w/ tilapia spines.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
3. Workers prevent entry of pathogens into AP environment by wearing proper and maintained footwear and using appropriate remediation practices.	<ul style="list-style-type: none"> ● No footwear policy. ● Policy is not comprehensive 	<ul style="list-style-type: none"> ● Employees use footbaths, dedicated greenhouse shoes or boots, or disposable paper booties. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
4. Clean, safe place for workers to store their personal items.	<ul style="list-style-type: none"> ● No designated lockable, storage area. ● Personal items stored on the floor. ● Items stored within the production or packing areas 	<ul style="list-style-type: none"> ● Personal items on shelf or table, off the ground but not in production or packing areas or above product flow zone. ● Separate storage area away from food production areas 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
5. Handwashing and toilet facilities available and well maintained	<ul style="list-style-type: none"> ● No person in charge of supplying and maintaining worksite sanitary facilities ● No reasonable access to toilet or handwashing facilities 	<ul style="list-style-type: none"> ● SOP ● Handwashing policy enforced ● Toilet and handwashing facilities available and maintain as in company SOP ● Cleaning schedule followed and recorded ● Non-bar or scented soap, potable water, and 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

	<ul style="list-style-type: none"> • No potable water for handwashing • No instruction signs, in appropriate languages, posted on proper hand washing and when hand washing is required. • Facilities are not maintained in appropriate condition. • Cleaning equipment, such as brooms and mops, not labeled and restricted to that use only. (i.e. the bathroom mop only being used in the bathroom) 	<ul style="list-style-type: none"> • single-use paper towels available • Signs posted and in languages of workers. • Handwashing sinks in work area recommended. • Cleaning equipment labeled and stored and used appropriately • Grey water directed away from production area 		
3 Production Areas				
Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
AP system water quality assessments are performed regularly. Biofilters are working and maintained.	<ul style="list-style-type: none"> • Water quality unknown • Biofilters and/or screens clogged, full, or not working effectively. 	<ul style="list-style-type: none"> • SOP on how to??? • Water tests taken regularly, records kept (system tests eg pH, O2). • Biofilters working; screens not clogged. 		<input type="checkbox"/>
Systems in place for upkeep and cleanliness of area.	<ul style="list-style-type: none"> • No cleaning SOPs • Debris on floor • Items stored in production areas. • General untidiness • Trash containers not emptied • Standing water • Tank cleaning tools used to clean harvest containers. • Discarded produce not managed appropriately 	<ul style="list-style-type: none"> • SOPs in place for daily, weekly, and monthly cleaning of area. • Trash and debris removed daily • Area looks tidy with limited debris (no more than what would occur during one typical work day). • Cleaning tools are labeled and separated; e.g. scrub brushes for tanks, scrub brushes for harvest containers, etc. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Solids removal/Waste mgmt.	<ul style="list-style-type: none"> • Production beds not large enough to handle the amount of fish waste added 	<ul style="list-style-type: none"> • Policy and SOP for solids removal in system. Solids removed at least once a ____ [depends on system, but specify]. (gravity clarifier, swirl 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

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	<ul style="list-style-type: none"> to them. ● Poor management of media beds 	<ul style="list-style-type: none"> settler, radial flow settler, microscreen drum filter, or any other method that allows solids to be completely removed daily) 		
System water and plants.	<ul style="list-style-type: none"> ● Edible portions of plants touching system water. ● Edible portions of plants touch production surfaces, etc. 	<ul style="list-style-type: none"> ● Mechanisms or processes in place to prevent contamination of edible portions of plants with system water or potentially contaminated surfaces.* ● Edible portions of plants are culled if touching system water or other potentially contaminated surfaces 	*Grower would create an SOP or have policies. Will vary by system.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
System water touching edible portions of plant is treated beforehand (e.g. watercress, microgreens)		<ul style="list-style-type: none"> ● UV, heating, or ozone, chemical ● Process controls in place to make sure sanitation is taking place. ● SOP for water treatments. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Processes in place to prevent general cross-contamination during production.	<ul style="list-style-type: none"> ● No areas designated for specific uses (tool storage, handwashing, etc.) ● Chemical/pesticide runoff from surrounding areas 	<ul style="list-style-type: none"> ● Designated areas for specific uses clearly marked. ● Well-drained; no standing water ● Glove, handwashing, foot wear policies in place and enforced ● Protected seedling nursery area 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
All operations equipment is maintained to prevent contamination	<ul style="list-style-type: none"> ● Rusty ● Cracked ● Broken ● Greasy ● Dusty exhaust fans ● Lubricants and oils are not food grade. ● Adhesives 	<ul style="list-style-type: none"> ● In good repair ● Maintained according to manufacturer's recommendations ● Rust-free (food contact surfaces!) ● Cleaning schedule exists 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

4. Harvesting

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
System water does not touch edible portion of plants during harvest.	<ul style="list-style-type: none"> ● No procedure for when safe harvest ● System water drips over plants when lifted ● Surfaces not cleaned 	<ul style="list-style-type: none"> ● Harvest SOPs known, trained, demonstrated ● Harvest systems designed to minimize splashing and water disturbance. ● Plants bench harvested (cut directly out of the raft while rafts are still in the bed. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

	between lots/rafts/racks	<ul style="list-style-type: none"> ● SOP for harvest procedures. 		
Harvesting methods avoid cross contamination.	<ul style="list-style-type: none"> ● Workers handling plants and rafts, or contacting water during harvest while handling plants. ● Workers carrying dripping raft over other under-production benches 	<ul style="list-style-type: none"> ● Workers handle only plants during harvest and not touching water or rafts. ● Workers properly wash their hands or change gloves before harvesting or handling produce. ● Harvest containers and tools cleaned and sanitized on a regularly scheduled basis. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Proper post-harvest cooling techniques	<ul style="list-style-type: none"> ● Leaving harvested produce out for extended time periods 	<ul style="list-style-type: none"> ● Produce is quickly covered and rinsed, as appropriate, after harvest ● Perishable produce items are kept cool 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

5. Packing Area

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
Rodent, bird, and insect exclusion from packing areas	<ul style="list-style-type: none"> ● Rodent, bird, insect activity is apparent ● No controls ● Inadequate controls ● Sporadic monitoring 	<ul style="list-style-type: none"> ● Areas inspected on scheduled basis. ● Pest control procedures used to exclude or remove pests ● SOPs are in place for pest control ● Service reports/Logs available ● Pesticide logs complete up-to-date ● Safety Data Sheets (SDS) accessible, employee training provided, for any chemicals, pesticides, and sanitizers used. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Screening or covering of lights	<ul style="list-style-type: none"> ● Lights in the production and packing are not covered with a shatterproof material. 	<ul style="list-style-type: none"> ● All lighting fixtures are screened or covered OR shatterproof OR sleeved. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Packing line sanitation	<ul style="list-style-type: none"> ● Packing lines dirty. ● Not cleaned on scheduled basis. ● Packing surfaced not covered when not in use (if applicable). 	<ul style="list-style-type: none"> ● SOPs are in place and records kept. ● Packing lines washed with soap and water, and sanitized at end of each day or when switching to another product. ● Brushes and sponges inspected for debris and integrity and cleaned daily. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

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Use of food grade oils and lubricants	<ul style="list-style-type: none"> ● Food grade oils and lubricants are not always used. 	<ul style="list-style-type: none"> ● Only food grade approved and labeled oils or lubricants are used in the packing house. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Storage of containers used for packing and shipping produce	<ul style="list-style-type: none"> ● Boxes stored on the floor ● Packing containers and materials not used in a First In / First Out manner 	<ul style="list-style-type: none"> ● Containers stored covered, off the floor, and in a designated area. ● Material arrival dates put on materials and they are used in a FiFo format 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Cull management	<ul style="list-style-type: none"> ● Cull not removed ● Evidence of cull debris not in designated areas/bins 	<ul style="list-style-type: none"> ● Culls removed daily. ● Culls not placed where they attract pests or their drainage is a nuisance 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Quality of gloves on packing line	<ul style="list-style-type: none"> ● Workers wear non-disposable gloves that are not washed and sanitized daily. 	<ul style="list-style-type: none"> ● Workers wash hands and change to new, non-latex disposable gloves after meals or smoking, or using toilet or when gloves become soiled. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Packing area workers are properly attired.	<ul style="list-style-type: none"> ● Clothing is soiled ● Loose hair ● Uncovered hair ● Jewelry ● Artificial nails 	<ul style="list-style-type: none"> ● Clean clothing is worn each day. ● Clothing changing Policy on clothing worn after handling chemicals, animals, or other materials that could contaminate produce or fish. ● Smocks or aprons worn by produce handlers are cleaned or changed daily and not worn outside the packing area or inside bathroom. ● Hair is restrained and not falling into or touching the produce or production areas. ● No jewelry other than a plain band ● No artificial nails 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Ice making equipment is used in ways to prevent contamination.	<ul style="list-style-type: none"> ● Regular cleaning schedule not in place ● SOP not properly followed ● Cleaning not being done 	<ul style="list-style-type: none"> ● Process in place for cleaning (SOP) and is used. ● Regular sanitation schedule of ice making machine, shovels, and vehicles that transport ice. ● Cleaning schedule is created and maintained 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
6. Food Contact Surfaces – Packaging and/or Washing Area				
Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement

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Prevent cross-contamination on food-contact surfaces	<ul style="list-style-type: none"> • No areas designated for specific uses (such as produce cleaning, handwashing, breaks, etc.) • Muddy, dirty or contaminated surfaces • Evidence of pests, fecal or mold contamination (e.g., birds/bats/rodents in rafters, insects) • Unclean surroundings (e.g. dirt, dust, cobwebs, clutter, manure) 	<ul style="list-style-type: none"> • SOP • Minimized contamination from rafters (birds, bats, rodents, insects) • No pest presence • Traps set • Enclosed building or overhead netting or barrier • No breaks in doors, gaps or cracks • Cleaning schedule • Use bleach or other adequate, food grade, sanitizers for food contact surfaces and equipment • Safety Data Sheets (SDS) accessible, employee training provided on use 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Good light to work	<ul style="list-style-type: none"> • Dim, dark conditions. 	<ul style="list-style-type: none"> • Daylight, skylights, or well-lit area. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

7. Storage and Distribution

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
Cooler storage and transportation prevents contamination and spoilage.	<ul style="list-style-type: none"> • Poor air flow • Dirty surfaces • Cooler unable to maintain consistent temperature • No non-glass, non-mercury thermometer to measure unit temperature • Disorganized or over-crowded cooler • Evidence of pests • No wall space at back of racks 	<ul style="list-style-type: none"> • Cooler size sufficient for capacity • Clean surfaces • Time/temperature requirements adhered to and documented • Well organized • Good product rotation • Door form a good seal with less than 1/32" space. • Well- insulated to maintain consistent temperatures • Blowers allow for good air flow • Pest-free • Cleaning schedule 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Non-cooler storage and transportation prevents contamination and spoilage	<ul style="list-style-type: none"> • Disorganized or over-crowded • Evidence of pests 	<ul style="list-style-type: none"> • Well organized • Good rotation • Doors or strips form good seal to outside world • Cleaning schedule 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

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Use of proper storage containers	<ul style="list-style-type: none"> ● Reuse of old boxes/containers in bad shape ● Produce boxes on bare ground 	<ul style="list-style-type: none"> ● Use clean, new produce boxes or bins (industry standard produce boxes) ● Produce boxes do not touch bare ground ● Food-grade containers for fish. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
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8. Chemicals

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
Well documented and judicious use of pesticides – all things that kill are pesticides)	<ul style="list-style-type: none"> ● No training of pesticide applicators ● No log of types, amounts, or timing of pesticide applications ● The wrong crop is on the label 	<ul style="list-style-type: none"> ● Inventory of all purchases and use ● Track and document types, concentrations and dates of chemical applications ● Pesticide Applicator’s license (actually, it depends on the pesticide and the state whether or not a license is needed) ● The crop is on the pesticide label ● Safety Data Sheets (SDS) accessible, employee training provided 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Cleaning chemicals are used in ways that prevent cross-contamination.	<ul style="list-style-type: none"> ● Chemicals are intermingled with other items and in an unlocked container ● Cleaning agents not used properly as evidenced by _____ ● Unclean surroundings (dirt, dust, cobwebs, clutter, manure) 	<ul style="list-style-type: none"> ● SOP ● Inventory of all purchase and use ● Chemicals stored appropriately – locked or separated/restricted ● Measure cleaning solutions according to instructions ● Use food grade bleach or other adequate sanitizers for food contact surfaces and equipment ● Cleaning schedule 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Spill response plan is written and updated routinely. (If using chemicals)	<ul style="list-style-type: none"> ● No written spill response plan ● No spill kits ● Excess material and rinsate discarded improperly 	<ul style="list-style-type: none"> ● Spill plan written and updated ● Phone numbers and emergency response numbers posted near phones. ● Spill kit available near mixing area. ● Excess materials and rinsate used according to label. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

9. Traceability and Response to Food Safety Problems

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
Product traceability	<ul style="list-style-type: none"> No way of tracing produce sold from farm to first buyer. 	<ul style="list-style-type: none"> Sales records contain information that links produce harvested to produce sold (e.g. harvest location, harvest date, harvest crew, pack date, etc.) 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Recall plan in place and tested	<ul style="list-style-type: none"> Plan for response to food safety issues unclear 	<ul style="list-style-type: none"> SOP Mock recall Process for documenting and communicating to customers, Health Department, FDA about food safety concerns as applicable Understanding of the responsibility to follow public health direction in the event of potential health concern. 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed

10. Sanitary and Safe Transport of Product

Management Area	Unsatisfactory	Satisfactory	Supporting Documents	Status Action for Improvement
Products are always transported in clean vehicle.	<ul style="list-style-type: none"> Evidence of cross contamination risks in delivery vehicles No cleaning schedule 	<ul style="list-style-type: none"> Clean vehicle Inside area does not have materials – tape, insulation, wood, etc., that could fall into a produce container while during transport Product kept off of vehicle floor Regular cleaning schedule for vehicle 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed
Appropriate product temperatures maintained during delivery	<ul style="list-style-type: none"> Appropriate temperatures not maintained during delivery 	<ul style="list-style-type: none"> No unnecessary stress on product during delivery (sunlight, heat, cold) Appropriate temperatures are maintained during delivery 		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Corrective Action Needed