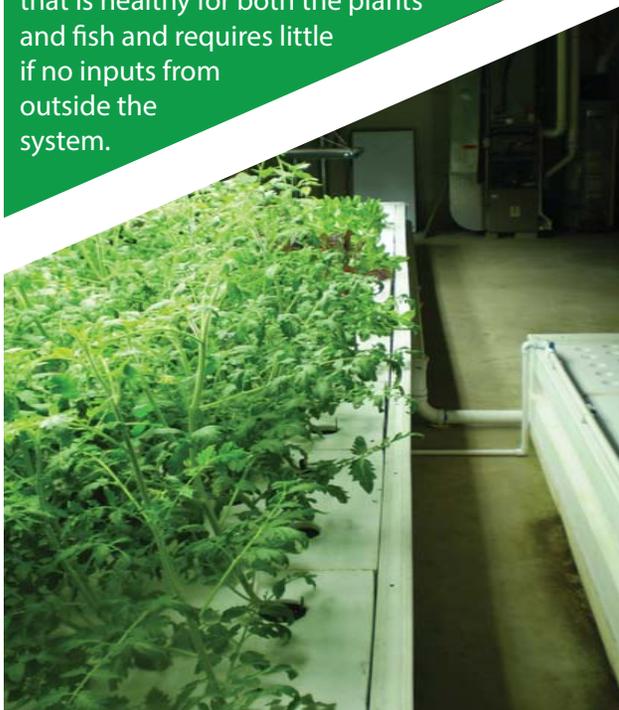


What is Aquaponics?

Aquaponics is an emerging agricultural system that combines growing fish (aquaculture) and plants (hydroponics) together in a symbiotic relationship. In traditional aquaculture excess nutrients in the form of fish and food waste must be removed from the system to protect the health of the fish. Waste products are often removed from the system by discharging contaminated water and adding clean water. Hydroponic systems, the growing of plants without soil, need to have nutrients in the form of fertilizer added to promote plant growth, and can also involve the application of chemical insecticides to control pest damage.

In aquaponics, the symbiotic relationship between the fish and plants creates a system that is mutually beneficial for both. The plants utilize the nutrients from the fish waste, while cleaning the water. This creates a system that is healthy for both the plants and fish and requires little if no inputs from outside the system.



Plants

Always keep in mind, the person eating your product might not wash it first, so be sure to minimize the risk of being the source of contamination

- To minimize getting system water on the edible part of the plant, harvest plants by cutting them at their base, not by pulling them out at the root
- Wash your hands before and after handling plants
- Wash your hands whenever they come into contact with the system water

Fish

- Maximize fish health by minimizing stress
- Maintain healthy stocking densities
- Use gentle handling methods
- Maintain good water quality
- Remove dead and dying fish as soon as they are discovered
- Wash hands and wear disposable gloves before and after handling fish
- Buy healthy fish from known sources
- Do not over feed the fish

Workers

Workers can be fomites (capable of transferring disease organisms from one place to another)

- Wash hands after:
 - Using the restroom
 - Smoking
 - Touching animals
 - Handling fish or fish food
 - Touching your face
 - Coughing or sneezing into your hands
 - Eating
- Avoid wearing jewelry
- Hair nets are recommended
- Don't eat, drink, or smoke in the facility
- Don't handle the plants or fish when ill or have open sores

Facility

- Have a sink with potable water in the area
- Have covers on overhead lights
- Use processing tables with non-porous surfaces
- Clean and sanitize tables and equipment after each harvest
- Don't allow mammals or birds into the facility
- Have an insect control program
- Don't harvest plants and fish at the same time

Aquaponics

How does it work?

The water in aquaponic systems cycles between the fish tanks and the plant beds. The fish produce waste in the water, nitrifying bacteria convert the waste to plant nutrients, and the plants use their roots to pull the nutrients out of the water so that clean water is re-circulated back to the fish tanks.



BEST PRACTICES LEAD TO FOOD SAFETY

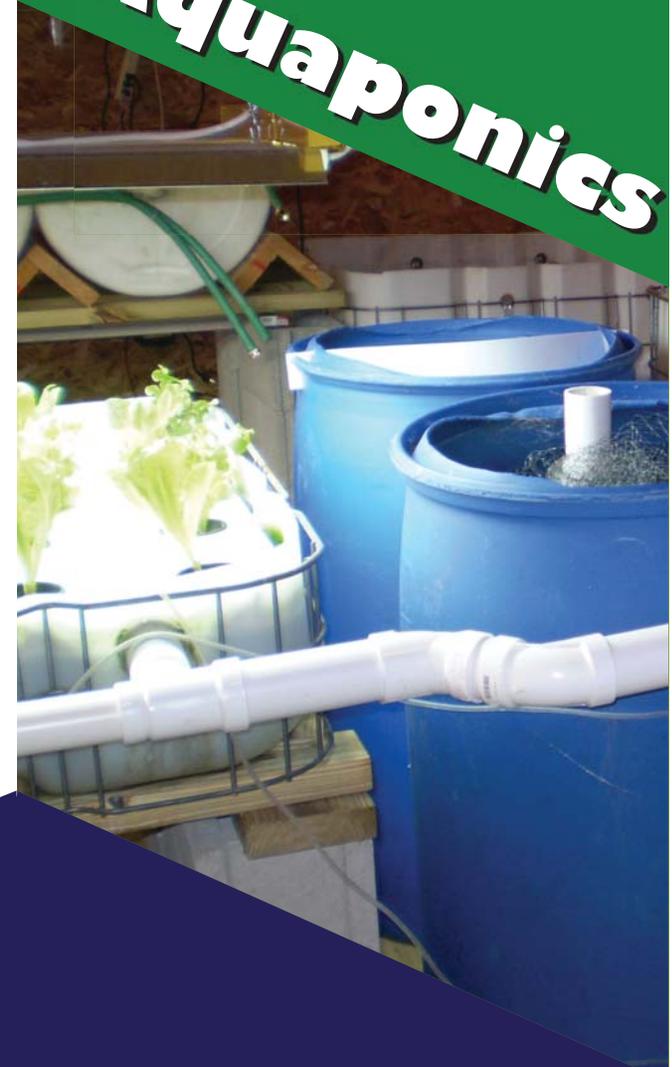
Our mission is to provide guidance on the best practices to follow in order to produce safe food for those who consume aquaponically grown products.

In order to process fish or plants for human consumption, or animal feed, you must obtain a license from MDARD.



Still have questions? Contact MDARD.
1-800-292-3939
www.michigan.gov/MDARD

References: backyard aquaponics.com and NCRAC.org



Best Practices & Food Safety

Produce safe aquaponic food.
It's your business.