

# **Friendly Aquaponics, Inc.**

## **2015 Family System Aquaponics Training**

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## **Construction Manual For Small Aquaponics Systems**

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# **Commercial Aquaponics Training**

## **Introduction**

**You will build the aquaponics systems that change the way the world grows its food, so that everyone has enough to eat. To do that, you need to understand systems.**

I had a sail making business that depended on my 92-year-old, cast-iron Singer sewing machine. One day it froze up in the middle of a seam, when I had a deadline and was already feeling less than totally relaxed and confident that I would get the job done. I didn't know how to fix it, so I sat and stewed. Then I decided to take the whole thing apart. I got out my tools; I disemboweled the machine. I took it completely apart. I saw how it worked, how the different parts related to one another, where it was adjustable. It took some time: I spent four hours doing this. Then I found the teeny piece of thread in the guts of the machine that had made it freeze up. The next time the machine froze up; it took five minutes to fix. Now I can fix and adjust any sewing machine I meet because I understand them. Understanding the system gave me the keys to the kingdom.

**Aquaponics is a revolution in food production and food freedom** comparable to what the world saw with personal computing. We know that producing our own quality food, instead of just hoping giant agribusiness companies will do it, is a great idea. When you understand how aquaponics systems work, you will have the tools with which to start this peaceful, affirmative revolution.

As part of this revolution, **we encourage and support affiliates**, something no other aquaponics trainers do. We are committed to teaching others how to spread the knowledge required to build and operate these systems. If you want to take this further than just starting a farm, and feel you can stand up in front of people and cheerfully spout aquaponics, contact us (after your MicroSystem, Family System, or commercial farm is up and running!). The real live system is the most important part; it comes first.

**PLEASE NOTE:** Our farm's systems were originally stocked with fish at a level of 1.5 lbs. of fish per square foot of raft area, the way we learned from the University of the Virgin Islands course in 2007. We call this a High Density system (HD for short) because of the high density of fish they support. With the high fish food, electricity, and labor costs we have in Hawaii, these were not the best systems to use because **we lost \$2 on each and every pound of fish we grew (lots more on this later!).**

In 2008 we developed a new kind of aquaponics system we call Low Density systems, or LD for short. These affordable LD systems are organically certifiable, and operate on one-fifth the fish that the HD systems do, so they lose less money on the fish portion of the operation. They grow the same amount of vegetables, and make you more money overall. There is a discussion of the differences between these systems in this manual, where we compare them explain the conditions under which each system produces the best financial returns.

As part of this course, you should have gotten the MicroSystem 64 & 128 manual, as well as the Apartment/Condo manual emailed to you. If you haven't received them, email me (Tim, [training@friendlyaquaponics.com](mailto:training@friendlyaquaponics.com)), and I'll send them. We recommend to all our commercial course participants to build one of these smaller systems first thing when they get home from the course, even if they have the funds and are ready to begin construction on a full-sized commercial system right away. The reasons are that it will be done and operational in a very short period of time; and will quickly give you valuable experience in building these systems and operating them. We've had students build these inside their garage in the wintertime, and light them with fluorescent lights; they work just fine!

Having one also lets you discover what grows best in your area QUICKLY, as this varies widely in sites as little as a few miles apart due to variations in microclimate. You can do a **"test grow"** in a MicroSystem's 412 or 824 pot spaces of tens of different varieties of vegetables, and then **know** what grows best without having to wait to plant out your \$100,000 commercial system. What a good idea!

Finally, **thank you from the bottom of our hearts** for supporting us in our commitment to this new and exciting method of food production. We will do everything in our power to make sure you get more than your money's worth from this training.