7 STEPS TO TILAPIA FARMING

A Simple E-guide for How to Breed Tilapia for Food, Fun, Profit & Fertilizer!

By John Musser, founder of Aquaponics & Earth
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Who is This Fish Guy?

My name is John Musser. I’m so glad you are dedicating yourself to learn about how to breed and raise Tilapia! I’m considered a pioneer in the sustainably movement, an inventor, and a humanitarian. Aquaponics and Earth Sustainable
Living, my nonprofit, was born with the passion to set up eco farms for orphanages! We live, eat and breathe food sustainability -- deriving 85% of our DAILY food from our 1/10th of an acre farm.

Our Urban farm has been visited by representatives of over 47 countries of the world, by agricultural specialists, soil experts, the Texas Arboretum, by two leading US universities, chefs and the largest humanitarian organization in the world! Representatives from two presidents and one king have come to see us. Leading chefs have told us that our tilapia fish and veggies are among the best they have ever eaten --- why?

Everywhere I go, people want to either learn aquaponics, aquacultural fish farming, or how to farm Tilapia fish. Having raised tens of thousands of these delicious and interesting fish, I’ve learned the joys of breeding Tilapia and the painful mistakes to avoid.
I’ve dedicated myself to making Tilapia Breeding at home as easy as possible because, as the founder of Aquaponics and Earth, I train orphans on how to breed and engage in aquaculture fish farming successfully.

You see, we are in trouble today! We are eating toxic foods.....foods prices are soaring, leading economists are putting out warnings to BE PREPARED. Due to this, tens of thousands of people in the USA and around the world want to learn how to farm tilapia in their own homes or backyards. Tilapia is also one of the most popular choices of fish in the world, so it is highly profitable. It is also rich in protein, which is essential for any healthy diet.
The problem is they don’t know how to start the process, have been given wrong information by someone who doesn’t know what they’re talking about on the internet, or only have bits and pieces of knowledge, but are missing key elements to be successful.

The purpose of this guide is not to give you all the necessary details (my training course does that). However, you will get a basic understand of what you will need to do and know to be successful. I will also provide you with a way to learn those crucial elements.

This is the start of a fantastic journey of learning for you!
Introduction

Ready to learn how to breed and raise Tilapia?

If you want to breed Tilapia fish, this guide is a good place to start and will give you a great overview of the entire process, as well as, some specific tips to get you going right way. At our farm, we produce as many baby fry as we can handle. You can, too! In fact, most of the time we purposely slow the process down because there are so many new fish.

We have been raising Tilapia fish at our farm for many years. I have been trained by the best. But even before my ‘REAL’ training it was easy to me to get Tilapia to breed. It just happened! In just a short period of time, we have attracted the interest of leading Universities and experts in this field and
humanitarian orgs that represent over 100 countries of the world. Because when you learn to breed these fish they leave rabbits in the dust!

The big mountain for me was learning how to sex Tilapia. We went to a small Tilapia farm way out in the woods in Florida. The training area had been blown down by the winds. In the hot Florida sun, Teresa and I sexed hundreds of 3 inch fish it seemed for hours. This is just a little of the price we have paid to bring you this training.

Then I was taught Enhanced Breeding Techniques that have enabled us to produce beautiful brood stock and some of the finest looking fish in our region. We have had many experts tell us they are among the finest they have ever seen.

I've had many people come to me and ask, “How do you do it?”
Until now, I have not released my secrets. I have had people begging me to help them. It’s because I want to help poor nations, orphanages, and create jobs here in the US that I’m going through this painstaking process. You can’t find a lot out there on this subject that will be plain and simple. Most people (until recently) keep these things quiet for themselves. But, I have a passion for this and want to help feed the world!

Now that we have protected ourselves in every way with a good legal team, we can send it to the Nations of the world with our blessing!
Countless hours and research and development have gone into my training. Hundreds of tests and retests. You can see pictures of my fish below. Other fish experts from around the world have said they are very nice. I have now developed several ways to breed the fish in glass tanks, plastic tanks, cement tanks, swimming pools, and so forth. What I’m most proud of is that these fish are all bred in a healthy 100% organic way. Also, we have developed systems to grow them out to maturity which most people do not understand.

**I just want to emphasize again. You can learn to do this, also.**

This process is **not** complicated. And **that’s what sets my teaching and training apart. It’s simple.** I’ve taught kids and orphans around the world how to successfully breed Tilapia in as little as one week.

A couple of years ago, I gave 47 three inched Tilapia breeders to an Orphanage in Mexico. In just six months, they produced an estimated 15,000 fish of various sizes. Now, they are master breeders.

You can become a master breeder also. If you haven’t already registered for our webinar training, I encourage you to do so! If you have, congratulations! Invite a friend to join by sending them to [http://bit.ly/tilapiawebinar](http://bit.ly/tilapiawebinar)

Because our mission at Aquaponics and Earth (AESL) is to help orphans around
the world become sustainable, a portion of everything we do goes to helping those in need. When you recommend one of our classes, you can feel good knowing that you made a difference in the world.

Now let’s begin! This one principle will put you ahead of 95% of beginning tilapia farmers.

“This One Lesson and You’ll Be Ahead of 95% of Beginning Tilapia Breeders.”

I was invited to come to a conference for orphanages where over 500 were represented. I went from booth to booth and a number of them had received grants for sustainability. A few wanted to grow Tilapia. Not one person really knew how to do it. A man told me that he bought 100,000 fingerlings and put them all in one pond together. I continued to hear stories like this. Finally, I told my wife Teresa that I would get on a soapbox and preach for 20 minutes, and teach them that his is NOT the way to do it.

With this method, some fry will grow twice as fast and eat most of the fingerlings. The females will get pregnant constantly and be scrawny and take much longer to harvest. It will be filled with fish of all sizes. You will not be happy with the results.
#1 Most Important Lesson: Tilapia are grown like a crop and in stages!

Learn this, and you have made a milestone in your journey. Few people understand this process and I have talked with hundreds. They all tell me they never heard about this simple principle. I learned this from a man who was retired and spent his life selling tilapia to stores.

First, the fry tanks

These are newborn babies that must be watched until they are a certain size or they will disappear like popcorn. I like to put my baby fry in small floating nets till the danger is over or small glass tanks. **Monitor daily and when one fry gets big take it out fast** or it could wipe out your batch in days!

One time we had over 300 baby fry and we let the tank get green with algae. I had interns watching this and many more and thought all was well. Just a week later only a few remained. I cleaned the side of the tank and discovered that one had grown to over triple size and ate all the rest.

Then set aside tanks for fingerlings ONLY
A fingerling is a young fish from about 1 to 2 inches in length. As you gain experience as a grower, you will breed your own baby fish. But when you first begin, you will have to find fingerlings. The easiest place to get fingerlings is from another fish farm in your area or on the internet. AESL sells fingerlings locally when in stock. They will not eat one another but can bite and tear if food is not available. It’s important to feed the fish properly.

Next, have tanks for Juvenile fish.

At this stage they are still very aggressive and can damage or eat other fish. Keep them well fed and all will be well with only occasional casualties.

The next step is Grow out tanks

This is next to the final stage before harvest. Grow out tanks are intended to be packed. You will need a good bio filtration system, good air, and high water quality. Depending on how fast you want them to grow, they can be all put in one tank or in cages. You feed them and harvest them.

Final stage: purging tanks and final harvest

AESL has developed a simple but powerful process in purging tilapia fish. There is not enough room to go into detail about our purging method here, but we do discuss it in our soon to be released How to Breed Tilapia for Food, Fun, Profit &
Fertilizer Training Course. Purging is not mandatory, but will clean the fish inside and out. It is from this final purging tank that you collect your harvest.

Next, Mike Sipe, one of my most impactful Tilapia Breeding mentors, will tell you some interesting and vital facts about tilapia. In case you’re not totally convinced, here are 6 reasons to grow tilapia fish at home.
6 REASONS TO GROW TILAPIA FISH AT HOME

By Mike Sipe, Lifelong Tilapia Scientist and Expert

Outside of the United States and in many areas of this country, malnutrition is a way of life. In most cases, this malnutrition is due to the unavailability of low cost proteins such as lysine and others. Home fish farming offers a solution to the availability of an affordable source of fish.

Part of this solution requires knowledge of how to grow, harvest, purge, process, prepare, cook fish, and preserve fish. The farmed fish will be healthy and acceptable in many forms to those who would like to include more fish in their diets.

Fish are very high in lysine and very small amounts of fish in the diet can go a long way toward creating longer, healthier, and more enjoyable lives by supplying the body’s protein needs. This book is written to help you understand the major factors that affect success in growing tilapia on a small scale.
Tilapia – An Ideal Fish for Aquaculture

The name tilapia is a taxonomic name (genus) given to a group of fish that belong to the cichlid family of fishes. The cichlids populate many of the tropical and semi-tropical areas of the world and have many things in common with each other, but there are major differences between most of them and the tilapias. Tilapias are one of the major groups of food fishes around the world, especially in the tropical and semi-tropical areas, and have been cultivated for thousands of years. Pictures or carvings appear on artifacts and monoliths in Egyptian tombs as far back as 2,000 BC, but only in the last 50 years have we began to focus on developing them as an alternative to harvesting wild fish.

Tilapias have a number of special capabilities. Some of these capabilities occur in one fish or another, but seldom occur within the same fish. The fact that all of these characteristics occur within the same fish is what makes tilapia a very good fish for home aquaculture.

These capabilities include:

FILTER FEEDING: The tilapia have tiny combs located on their gills, called gill rakers that allow them to remove organisms from water passing through their gills. Tilapia can filter organisms as tiny as 3 microns, which is about the size of
human blood cells. This filtering is so efficient that it can be compared with the best swimming pool filters in removing microbes from the water.

**EFFICIENT DIGESTION:** The acid content in the tilapia stomach is one of the strongest known and allows them to efficiently digest a wide range of microbes, including diatoms, bacteria, fungi, and other organisms, by simply dissolving their cell walls. Tilapia feed on dead leaves and organic debris that fall to the bottom of a pond. Tilapia have been shown to be able to digest up to 70% of the “mud” as it passes through their gut.

**STRONG IMMUNE SYSTEM:** When well fed and kept in warm water, tilapia are resistant to diseases. This means that for the beginner and the experienced fish farmer, we at least do not have to worry about losses of fish due to strange diseases, such as those found in catfish, trout, and most other fish.

**FREQUENT BREEDING AND MOUTH BROODING:** At temperatures of 85 degrees F, they can produce baby tilapia (fry) almost every week year round. The mouth brooding and maternal protection of the fry helps to create a high survival rate. This combination of continuous production and high survival rate, allows the tilapia farmer to have a constant supply of fingerlings to re-place those that get big enough to eat.
6 REASONS FOR GROWING TILAPIA FISH AT HOME

The reasons for growing tilapia at home are many and include some of the following:

1. **Family Diet Improvement - Nutrition.** Since the tilapia provide a high quality meat source that is high in protein and very low in fat, they provide an ideal meal in terms of a balanced amino acids and protein intake.

2. **Extra Income.** Since it is so easy to learn to produce tilapia at home it is possible to produce more than the needs of the family in a small space. These extra tilapia can be sold as fry, fingerlings or eating fish when there are more than needed.

3. **Lower Food Cost for Family.** Waste from the tilapia growing tank can be used to grow organic vegetables and the kitchen waste can be ground and fed back to the tilapia. This recycling of energy and nutrients allows you to create a sustainable production system.

   A. **Recycling food & vegetable waste.** Lower the cost of the feed needed to raise the fish. The recycled waste provides much more food per pound when fed to the fish than when used to make compost.
B. **Feeding the fish costs less than buying fish.** Even when supplemental fish foods are purchased from feed suppliers, the cost of the feed required to produce one pound of tilapia is far less than to buy the same amount of fish in the grocery store.

(4) **Lower Cost for Animal Food.** The tilapia by product, such as the scales, bones, and stomach contents make excellent feed supplements for other farm animals such as chickens or hogs, at a much lower cost than buying the feeds for them.

(5) **Education.** Working and playing with the tilapia breeding system, water systems, air systems, feeding programs and many other activities, provide many opportunities for learning the basics in science and social fields.

For instance, the breeding and maternal care, and the aggression and territorial behavior provide opportunities to understand the basics of the establishment of animal social systems. The measurement of water quality parameters provides opportunities to understand basic water chemistry. The physical dissolving of the oxygen in the water provides an opportunity to understand the mechanics of air compression, expansion, water, air interfaces and what it means to dissolve a gas into water.
The processing of the waste water provides an opportunity to learn about suspended solids, dissolved solids, and the role of bacteria and other aquatic organisms in keeping the water clean and suitable for growing fish.

(6) **Entertainment.** Watching the fish in the breeding and growing tanks allows for countless hours of enjoyment as they perform their mating and territorial rituals. This is one reason I recommend that each new breeder setup be put indoors in a suitable place where it will be viewed often during the day and evening so that the fish can be enjoyed while learning from them.

Next, here are the 7 steps to Tilapia Farming, laid out for you from A to Z.
7 Steps to Tilapia Farming

Step 1: Decide Your Goals and Objectives

Have you ever thought about growing your own tilapia fish in your backyard or farm for fun, food, fertilizer or profit?

If you answered yes, then tilapia farming may just be the thing for you! The first step you need to take is to decide your goals and objectives.
The culture of Nile tilapia (Oreochromis niloticus) can be traced to ancient Egyptian times. Depictions found in a tomb over 4000 years ago showed the fish held in ornamental ponds. Nile tilapia from Japan were introduced to Thailand in 1965, and from Thailand they were sent to the Philippines. Nile tilapia from Cote d'Ivoire were introduced to Brazil in 1971, and from Brazil, they were sent to the United States in 1974. In 1978, Nile tilapia were introduced to China, which leads the world in tilapia production.

Tilapia are among the easiest and most profitable fish to farm due to their omnivorous diet, mode of reproduction (the fry do not pass through a planktonic phase), tolerance of high stocking density, and rapid growth. In some regions the fish can be raised in rice fields at planting time and grow to edible size (12–15 cm, 5–6 inches) when the rice is ready for harvest. Unlike salmon, which rely on high-protein feeds based on fish or meat, commercially imported tilapia species eat a vegetable or cereal-based diet.

Over the years, the popularity of tilapia has grown steadily, leading most people to call it the true chicken of the sea. This branding is true to its words because they are very easy to farm and are relatively low maintenance. There are over 100 breeds of Tilapia that you can farm, and each fish can grow up to 2 pounds in less than a year.
Tilapia is a favorite meal in many households and is in high demand both for home consumption and restaurants. The great need is for US citizens to learn this incredible food and profit making opportunity.

Tilapia is considered the best fish for farming in backyard ponds. Even in restricted communities, people have started to grow the fish as a food source.

We use tilapia in our aquaponic systems along with vegetables, such as cucumbers, tomatoes, Swiss chard, and lettuce. In such a system, the vegetables always use the organic wastes from tilapia for growth, something that not only helps in purifying the water but also builds a sustainable food chain. We also breed them in several locations in various tanks; we even have a tilapia laboratory/barn to develop enhanced breeds. It’s fun, very interesting, rewarding, and profitable.

Just the waste of Tilapia put our entire farm on the global map. It’s important to take a quick inventory of your desires and readiness! What are your goals and objectives? Do you want to grow fish for fun, retail, or just to feed your family?

If it is for retail purposes, are you going to sell your fish at the local farmers’ market? I encourage you to quickly invest in a small scale tilapia farm before investing in a large scale commercial farm. Learn the ropes first, and then do
what you want! You will save time and money and you will always use the equipment you already bought.

We are not a commercial farm for selling fillets. We sell more for aquaponics and broodstock. We harvest the large fish for our personal use and make a lot of fertilizer.

I will deal with all the above in our webinar and instructional training course. I will share a little of our journey and how we, my wife and I, have raised Tilapia for many years. I can’t imagine not having them. My very first goals were to feed my family and train orphanage children and villages how to do the same.

Well, it went way beyond this and continues to grow. These fish are a real source of open doors for us! I have had the privilege of entertaining the most prominent men of our day at our farm. Today, we use tilapia for much more than food. We use the water for aquaponics, the waste water for compost teas and fish mulch, the food for meals, soups, chowders, and the remains for fish emulsion.
Step 2: Find Out Your Local Regulations

Since Tilapia is an invasive species not everyone one can raise them for open sale.

It’s important to find out your local regulations!

I know we don’t like to deal with these things, but if you want to go beyond your aquaponics system and feeding your family to sales don’t let fear stop you. Since each state normally has its own laws and guidelines, it’s important to first check the local authorities’ standing regulations about tilapia farming. Your state’s aquaculture extension officers will provide valuable assistance on growing tilapia.

We contacted our fisheries department years ago and we became a licensed fishery without a lot of hassle. Since we had all recirculating systems that did not flow into streams, lakes or rivers, everything went through very well. We have our certificate in several locations at our facility and it feels good to know we are safe and operating legally as a fishery!

Here in Texas the TPWD has recently clarified its regulations on Mozambique Tilapia in Texas. Currently, Mozambique Tilapia are legal to stock in private waters without a permit IF THEY ARE DELIVERED DIRECT TO YOUR LAKE, POND, OR AQUAPONICS SYSTEM.
Mozambique Tilapia are an African cichlid that has been stocked with much success in lakes and ponds in Texas for selective vegetation control and forage enhancement.

TEXAS

There are three species that may be aquacultured with an Exotic Species Permit from Texas Parks and Wildlife: Blue, Nile, and Mozambique tilapia.

The ONLY tilapia species you can have on your property for personal use (i.e. not for sale to the public) without an Exotic Species Permit is MOZAMBIQUE tilapia. In order to be in possession of Mozambique tilapia without a permit, you must maintain a copy of your exotic species transport invoice with a valid permit number from the group you purchased the fish from.

It’s a 3 Step Process in our webinar and full training course. I will provide you with everything you will need for several states across the US and the process you must take.
Step 3: Create Your Plan and Budget

I will spend a good deal of time in my upcoming training to talk about determining a budget for your new tilapia venture. I’m looking back and seeing all the things my mentors did not teach me and I want to take your headaches away!
I’m thinking from a problem solver perspective. If I could have come home with the information I will give you, I’m not sure where we would be today. Some of the things I will be sharing took me years of trial and error, then success!

You need to come up with a plan and a budget!

You also have to draft a good well thought out plan on how you will raise the tilapia. I will train you the best I can, but think about what you are going to do with them.

They grow faster than rabbits! They won’t go to waste as you could feed fingerlings to your chickens from time to time or your ducks.

Since we are in an area where people are craving aquaponics, we have never had a problem getting rid of them. We sell them almost every week.

I had to think out a system of taking the fry from my nursery tanks to our barn for heavy feeding, then to our back door for selling. I needed to get some aerated buckets for people to use to take fish home and get a system in place. Our next step is mail order, but so far we have so many wanting them locally we can’t get started.
What is your operational budget?

Make sure you start putting funds away and plan to do it right. Sometimes, I get so frustrated. I know everyone wants to save and so do I; but I have learned that doing things right the first time is what actually saves money, AND time. The longer it takes you to get up and going, the more money you lose.

This is my advice: get a good system first, learn it, and then replace or upgrade it later. We now have a simple way to set up grow out tanks that takes no more than 45 minutes to an hour. My advice is this: build the big cement tanks and large systems after you really have a handle on your stuff! You will thank me later.

START UP COSTS

I will share in more detail a system that can get you up and going for a few thousand dollars, I mean the whole shebang! This includes the brood tank, nursery tanks, some grow-out tanks, and all the supplies. Then you can add more when you need to or when you can afford it.

You’re going to need some space with water and drainage. If you are going to continue through the winter, you will need heat. A corner of a barn will need to be insulated to keep the cold out.
If you are going to keep a lot of pumps going, you will need good electrical connections and maybe an upgrade for heaters in the winter. These are over and above the costs mentioned above. In time, you will want a backup generator. These are basic tools of the trade for the serious tilapia farmer.

Due to the colder winters we have had in Dallas, we are harvesting most of our fish in the winter and this really works nicely, giving us a little break. We still have plenty in our Aquaponics tank and insulated barn.
Step 4: Set Up Your Tilapia Farming System

Step 4 is to set up a tilapia farming system!

Tilapia survive and thrive in several environments, including tanks, raceways, ponds and cages. Rearing fish in a pond is the simplest method as the fish can be left to feed on the pond’s natural food, but you won’t get the optimum results unless you use cages.
YOU RAISE TILAPIA LIKE A CROP

Tilapia need to be raised like a crop for the best results! You want to have fry tanks, fingerling tanks, juvenile tanks, and grow out tanks. When your fish are at juvenile stage you need to sort them male, female and runts. This is very important! At this point you can also select brood stock for yourself or to sell. The runts will just take up space if you want to get your fish to grow out. They can be used in aquaponics or for fertilizer.

I had one of America’s lead tilapia experts teach me this process, and it amazes me how few I have met, if any, that know and understand this process. I went to an orphanage conference and some of the leaders were telling me they just got 100,000 tilapia fry and put them all in the pond. NOOOOO! This is not how you do it. You will not be productive.

What will happen is: Some of your Tilapia will grow real fast and eat hundreds of small fry and fingerlings. They eat one another until juvenile stage. Then your females will start producing fry at three months of age and they will not get large due to producing so many fry. Then, you will get some monsters that will in turn eat others because there are so many fry available to eat, and so on.
When you sort your fish at juvenile stage they will grow up faster and bigger and more uniform. This is what you want! This means you will need a sorting area. We use three tanks and we can do it very fast.
Step 5: Select Your Best Tilapia Breeders

Now the fun part. Starting your own Tilapia farm!

SELECTING BREEDERS:

To get started you will need to purchase some breeders to get the whole ball rolling!

It’s important to find a reliable source. There is a lot of junk on the internet right now. Locals tell us before they knew about AESL, when they ordered fish online they were dead or sickly by the time they received them. There is also too much hype about what you need and don’t need. We hope to be sending brood stock soon, as I truly, at this point, don’t know who to recommend. I have called some
places and they seem like they don’t know what they are talking about or are suspicious. Or they don’t get back with you at all!

You must have everything in readiness long before your broodstock arrive! You want a main brood tank or tanks, nursery tanks and some grow out tanks to start with. You need this all before you order your fish!

The reason being is, once you get your fish, you are ready to rock and roll, and so are the fish. You don’t want to delay the mating process as this can hinder good breeders from being as productive as they could have been. I’ve seen people hinder or ruin real good fish that could have produced thousands. I’ve seen females turn bad and eat their fry due to not being ready to move into nursery tanks! If they do it once, they will learn to do it again.

That’s why you can set up anytime of the year, even in the dead of winter. You can wait till spring to get your brood stock or with the right indoor heating and lighting, you can breed anytime. Please hear me on this one. I have told many people this and even some locals that we have taught, only to find they have so many baby fry and fingerlings they have no place to put them. I will show you how to do it right the first time.

Tilapia are grown like a crop and there is a process for optimum growth. We have two kinds of fry tanks: a nursery tank for when they are first born then a second tank to feed them our special high protein diet. From this tank they grow to fingerling stage. Then at juvenile stage you sort, sex and place them till grow-out. Most people know nothing of this process. Some people throw them all together in a couple of tanks.
If you could see my grow-out tank right now you would jump up and down. On our tours, I let people feed them to see our two and three pound fish that will be harvested before winter, and last well into next year. We will freeze fillets and then can some for soups, chowders, and patties. It’s our favorite food!
Step 6: Raise Your Tilapia Fish Until They Are Ready for Harvesting – (Part 1)

Tilapia fish are omnivorous. They can eat insects’ larva, aquatic plants, algae etc. For optimum growth, you must ensure that they have all the food they need at all times. Tilapia fish are known to be better than livestock in terms of converting food into flesh. Adequate food supplies will ensure that they take the shortest time to grow big.
Tilapia start out as omnivores but later become more like vegetarians. They will graze on the algae in their tanks as well when they are older. The Tilapia’s digestive system is designed to eat algae, vegetation, other small fish, worms and insects. The newly hatched fry require a lot of protein for fast growth. You can actually stunt their growth by under-feeding them, which is what some breeders do to keep their fish in the sellable fingerling size range.

Tilapia are strictly warm water fish, and cannot be outdoors during winter in most of the U.S. Recirculating systems work very well. Many recirculating systems are indoors and kept warm for production throughout the year. When you have a biologically balanced water system, fish can eat algae in-between meals. I have fish that just live on algae all year long. They don’t get big, but we like to show them on our farm.

Once Tilapia are sexed, sorted and placed in grow out tanks, you will need good bio-filtration, good oxygen levels, and a good feeding program.

Tilapia will grow really fast if the water is in the mid to high 80's, from fry to plate in about 6-7 months. Cooler water will take longer. If you go on the internet, you will see all kinds of different information. The reason for this is because some systems are for intensive grow-out! Simply, the more fish you have in a tank the faster you must remove waste water! They will need more oxygen as the densities increase. Unless you are experienced, it’s best not to work with high density tanks.
You will get sick fish on your hands. Learn the ropes first, then get ready for the big times.

Tilapia don’t just survive on simple plants and microorganisms, they thrive on them. Tilapia utilize the nutrients more efficiently than other fish thanks to a digestive tract that, when extended, is about 13 times their body length. (A trout’s is less than three-quarters the length of its body.) That gives them a lot of time to extract nutrients. And because tilapia are so good at converting plant fuel into high-quality protein, they’re an economically wise choice. Tilapia are, by far, the most sustainable commercially available fish!
Step 6: Raise Your Tilapia Fish Until They Are Ready for Harvesting – (Part 2)

When you learn grow-out, you have to deal with: density, aeration, and food.

Remember, these parameters are not absolute requirements. You can go at your own pace and achieve the same results in a longer period of time. I use degassing units with splash down and our simple injectors. This encourages faster grow-out with low density tanks.

Here is the formula: in order to raise a tilapia fingerling to 1 pound, you need to provide it with 1 pound of oxygen and 1 pound of food.
Here's the trick, though. We need to provide these materials in just the right amounts over the desired length of "grow-out" time - generally anywhere from 7-8 1/2 months. The first question that arises is density: How many can I place in the tank?

Farmers say a rule of thumb is to allow for a carrying capacity of 2 pounds of biomass (Tilapia) per cubic foot of water. Densities of 5 pounds per cubic foot or higher can be accomplished with more sophisticated equipment.

In order to grow 66 Tilapia to 2 pounds (908 grams), you will need to dissolve in the water 6.8 grams of oxygen per hour for 12 months.

If we were to increase the dissolved oxygen to 10.4 grams per hour and provide better waste disposal and water changes, we could do it in 240 days (8 1/2 months)!

You must ensure that you feed your fish well besides maintaining favorable environmental conditions during the grow-out phases. Remember that tilapia reach a harvestable size in a matter of six to eight months.
Step 7: Find a Tilapia Farming Mentor

My last article on this subject to seven steps to tilapia farming is the most important.

You can buy a course or go to a seminar and that’s as far as you go. It’s up to you from there on. But what if you could take your training even further?

I had two wonderful mentors. **It cost me a lot of money over a span of 3 years, in all, a good $7,000 – $10,000 for training, trips, talks and**
some start up broodstock. This is NOT tanks, just training! We had to pay for flights, staying in motels, getting rental cars, etc.

But I was fortunate to be taught by the best in the industry. Even then, there were a lot of missing parts that I had to put together. I’m spoiling everyone and eliminating all this in my 24-7 online webinar and How to Breed Tilapia Training course.

Due to the above facts, it was hard to come up with a cost. If it were up to me, I would give away the farm, but I have a faithful and sacrificial staff and they have come up with an introductory cost for several items. Out of a lot of hard work we are ready!

On this exclusive and comprehensive training is one of a kind. It includes more on the details we've gone over in this series, plus information on:

- Choosing the right location
- Setting up your brood, nursery, and grow out tanks
- Selecting quality brood stock
- Fry Care
- Sexing tilapia
- * Our Secret Tilapia Food Recipe we have used for years that will accelerate your fry’s growth safely and organically! This process alone is
worth the cost of the webinar as it will produce a *superior brood stock* and set your Tilapia’s growth speeds to reach maturity faster.

- We are also offering the webinar digitally for download, so you’ll be able to reference it at any time in the future.

I used to offer just my fry care training for $325 and tilapia breeding at $500 per person. With this webinar you get **$825 worth of training for only $199**. I don’t know how long our staff will offer this, but since you’ve come this far, you’ll definitely want to get in on this training while you can.


Thank you for hanging in there with me! I really hope you’ve gotten a lot out of this Tilapia farming series. If you liked this free training, you’ll love the rest of our digital training and products.

To your sustainability,

John Musser
BONUS TILAPIA BREEDING REFERENCE ARTICLES
BONUS Article #1
7 Core Tilapia Breeding Tank Requirements

1. Light

2. Water

3. Respiration (Oxygen) Food

4. Growth

5. Reproduction

6. Waste

7. Responds to Changes
BONUS Article #2 –
5 DEADLY MISTAKES NEW TILAPIA FARMERS MAKE THEIR FISH WATER

Don’t make these 5 deadly water mistakes when farming tilapia.

All living things take in water. If a living thing becomes dehydrated, sickness and even death may occur.

Tilapia not only need water, but for them water is their natural environment. They are perfectly designed to get all they need from it, to move through it, and live, breed, and grow.

Tilapia are very adaptable fish and they can survive a wide range of water conditions, but pollutants and poisons in the water are a serious threat to Tilapia.

1. NOT KEEPING POISONS OF ANY KIND AWAY FROM YOUR TANKS AND FISH

Take care to keep pesticides and herbicides away from the water. I don’t allow anything in my greenhouse, not even bug spray. I only have one thing, very mild dawn soap, that’s it!
Be careful with buckets. Mark them, as someone may have used it for something else. Always look and smell first. Don’t spray pesticides where your fish are, it can make them sick.

Be careful what you use for clamps in the water, use stainless steel. It will cost more but cheap stuff will rust fast. Don’t use pipe dope or any substance that you don't understand, inside tanks especially if you breeding!

2. FAILIING TO MAKE SURE ALL THEIR FISH TANKS AND LINERS ARE FISH SAFE.

If you use plastic tanks or liners be sure that the manufacturer has guaranteed that they are fish safe. Poisonous materials, such as too much lead or zinc, can come from metal tanks and harm your fish.

3. USING CITY WATER TO MURDER THEIR TILAPIA

As a Backyard fish farmer, you must remember that chlorine from your city water system will kill Tilapia rapidly. We delivered two batches of Tilapia to a friend and they died within three hours, both times. It shocked me to hear what caused this. Come to find out the city has a high water table and the water is heavily chlorinated.

You can use your city water, but first, let it sit out for 24 hours so that all of the dissolved chlorine will dissipate. If you forget to do this you will find many dead fish in your tanks. I like to put a bubblier in also.
4. **NOT HAVING ENOUGH WATER FOR THEIR FISH**

In addition to having **clean water**, you must be sure that your fish have **enough** water.

We recommend, as a general rule of thumb that you have eight gallons of water for every pound of fish if you are a beginner.

As you become more experienced and have more sophisticated equipment or have constructed degassing units you may be able to have 2 gallons for every pound of fish or more. You will know when they are not happy. Sometimes they will just all jump out in the night. In the morning, you will have a surprise waiting you!

5. **NOT CAREFULLY WATCHING MONITORING THE TEMPERATURES IN THEIR TANKS!**

Another very important aspect of the water you use is the **temperature**. Tilapia are warm water fish. They live and grow best when the temperature is between 82 and 86 degrees, although they can live in water that is below 60 and above 90.

We have learned that temperature is a **very important factor** for both growth and reproduction, so do all you can to keep it in the best temperature range. Tilapia that are cold are much more subject to sickness and disease.
If the temperatures rise **too high** there will also be problems. *Hot water cannot hold as much dissolved oxygen as cold water can.* You may see the same responses in hot water that you see in low oxygen conditions. If the water gets to 102 degrees the Tilapia will die. If you live in an area with cold winters, you will have to raise your fish indoors and have a heater for your tanks.

For a long time, I thought the above was not true, until one day my greenhouse fan broke down and the heat got up to 105 and some of my prize fish did not make it.

**CONCLUSION**

Hopefully this article was an eye opener. Tilapia Breeding is not the hardest thing in the world, but there are **powerful and simple** principles that will **MAKE OR BREAK** your breeding process if you don’t know them.

I’ve dedicated myself to making Tilapia Breeding at home as easy as possible, because as the founder of Aquaponics and Earth, I train orphans on how to breed and engage in aquaculture fish farming successfully.

If you want to learn how to farm tilapia successfully, too, visit - [http://www.aquaponicsandearth.org/farm-tilapia](http://www.aquaponicsandearth.org/farm-tilapia) to get my free video training series on How to Breed Tilapia for Food, Fun, Fertilizer and profit.

Have fun with your Tilapia fish!
Many people fail right here with Tilapia fish. You need to remember that these fish are grazers, like cows, but eat at first like lions. The sign of healthy fish is to see them as they make the water white with splashing and eating at first feed.

1. **When you feed your fish always test with smaller amounts first** in the various tanks, then give your normal amount. Otherwise, you will waste expensive feed. Some tanks may need cleaning, more air, or the heater is broken. Tilapia do not eat much in colder weather.

2. **Offer short feeding times.** I feed my fish in over 20 tanks one by one and then go back in 10 to 15 minutes for a second small feeding. If pellets are uneaten, net them out and toss into a compost pile. I can’t state how important this is. When food is left to sink to the bottom it can: cause your aquaponics or aquaculture system to go rancid and gum up your pumps. This forces you to clean your tanks more often; and upsets the biological balance of your water. Also, the uneaten food will turn into ammonia which is toxic to your fish.

3. **Have a designated person or charts for feeding fish.** People love to feed fish, but they can feed them to sickness or death or turn your beautiful aquaponics system
sour. Have a check list which indicates the last time the fish have been fed. Keep fish food away from the general public so people can’t just randomly throw it in your tanks. Put up a sign, if need be, that reads, “Please don’t feed the fish!”

4. **Remember, all fish aren’t fed the same.** Breeder fish need 3-4 small meals a day when in glass tanks. Depending upon the system you have, grow out fish can be fed five times a day to reach maturity faster. Make sure you have a good bio filter to handle larger fish densities.

5. **Watch your fish after feeding.** Once I had over 2000 baby fry in a glass tank. One day they ate very well, but two hours later half of them were dead. The already maxed out tank could not handle any more ammonia that was released after eating. Any tanks with large numbers of fish should have consistent water quality tests.

6. **Store feed out of direct sunlight.** Keep your feed in a cool, dry place. Too much moisture will cause it to mold. The container from AESL is perfect and contains absorbent crystals to help keep it dry.

7. **Don’t keep your feed for long periods of time.** Detrimental bacterial can grow on the feed and make your aquaponics setup go rancid or invite undesired content into your fish habitat. Keep your food as fresh as you can.
Everywhere I go people want to either learn aquaponics, aquaculture fish farming or how to farm Tilapia fish. Having raised tens of thousands of these delicious and interesting fish, I’ve learned the joys and mistakes to avoid.

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BONUS Article #4
7 Mating Secrets Every Beginning Tilapia Farmer Should Know

Hint: Don’t throw out information on breeding that you may think to be too simple.

1. The male Tilapia’s goal is once he reaches breeding age is to establish a territory that he can defend and to attract as many females as possible. Before you even introduce the males, have his domain prepared beforehand. Don’t deprive him or yourself. Give the male the right conditions from the beginning and then watch nature take its course from the first few days.

2. The male tilapia seeks females who are ready to drop eggs for him to fertilize and he chases out of this territory any tilapia or other fish that is not ready to breed with him. This is why you should have your breeding areas in a somewhat undisturbed area if you are using glass tanks.

3. The female tilapia’s biological goal is to reach breeding maturity. She then searches for a suitable male who is able to keep other fish out of his
breeding territory while they are breeding. When she finds a suitable territory, the male will start by chasing out any other fish.

4. **The size of the territory the male will usually choose to defend is generally 2 to 4 times his body length in diameter in a circle or semicircle.** At AESL we teach that if you have a 55 gallon tank only keep two males. The Terra Cotta pots should be ten inches from the end of the glass and both turned and open toward the end of the tanks.

5. **The breeding follows a precise pattern with the male first establishing a territory.** With glass tank breeding, we help to establish by placing a clay flowerpot at two ends. Then, when a female is ready to breed she will swim into the region the male is defending.

6. **The female will lay 3 to 5 eggs at a time in the center of the male’s territory, usually in the flower pot, and then she will swim a little distance away.** The male will swim over the eggs and fertilize them, and then she will return and pick them up in her mouth and repeat the dance with the male all over again. The male and female continue their spawning until the female has a full mouth and this can take from 30 or 40 minutes to 2 to 3 hours for a large female. Don't let anyone disturb this process. The
larger she is the more eggs she lays at one time. The number may range from a few to several hundred.

7. **The number of eggs the female produces is related to several key things;** such as food and her mouth size to name a couple. The most important is her size in grams and her condition in terms of being well fed. The female *mossambica*, for instance, start breeding at 20 to 30 grams and continue up to and over 1,000 grams.

**THE BOTTOM LINE:**
A well-fed, healthy one ounce female can produce as many as 50 or more eggs per breeding and up to 2,000 or more when she is fully-grown. I have witnessed one of our females open her mouth and release a dark cloud of fish. We have one 6 inch female that releases 400-475 fry once or twice a month.
Tilapia are old enough to reproduce at about three months of age. This is one of the reasons why people love to breed Tilapia.

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Yours for sustainability,
John Musser