



Aquaculture Farming Basics

Get an intro to aquaculture farming and see if raising fish is the farming venture for you.

By Kate Savage

USDA/Stephen Ausmus
In this article ... Getting Started Farmer Qualities Most Common Stock Aquaculture Challenge
Portrait of an Aquaculture Farmer Conservation and Environmental Benefits Eating more fish has become more popular in recent decades, but aquaculture farming—or the production of fish and other crops that thrive in water—has been around for centuries: The Chinese have been using aquaculture since around 2500 BC, holding fish in artificial lakes that formed after a river had flooded and the waters abated.

As far back as a thousand years, the Hawaiian people were practicing aquaculture by constructing fish ponds.

There is even evidence that the Romans bred fish in captivity.

Yet here in North America aquaculture is a relatively young industry.

In contrast to more common agricultural ventures, many see the rise of aquaculture as a contemporary phenomenon. Much of the waters for aquaculture farming are yet uncharted!

Getting Started in Aquaculture

Start-up and supplies needed are simple and obvious. All it takes to push the boat out are:

Aquaculture Farmer Qualities

Aqua farming is likely to be more appealing to the patient methodical individual.

Do Women Do It Better? Men should not be deterred from venturing into aquaculture, but the International Food and Agriculture Organization found that women tended to be the best culturists; various studies indicated that they were more likely to be meticulous and methodical.

Know the Pond: It is very important that the aqua-culturist understand the pond, because in reality it's not the animals that are managed, they are hardly ever seen, in fact there is little interaction with the animals, what is managed is the environment, which is the pond.

It takes someone who is in touch with the pond to know what it's doing and what it's going to do before it happens. The eyes of the master fatten the calf.

Top
A pond
A source of water
Access to electricity
An aeration device
Seed stock
Feed
A pH tester

Top

Most Common Aquaculture Stock

SHRIMP Most small producers work with freshwater shrimp.

CATFISH & TROUT Species such as catfish, which is the biggest US crop, and rainbow trout, are commodities more similar to today's soybean and corn; they have a fairly low marginal return; ideally, you'll need a large operation to see significant income.

TILAPIA In addition to freshwater shrimp some small producers are having success with the adaptable Tilapia.

Facing the Challenges of Aquaculture

Compared to other more traditional crops, the investment returns can be much higher on a per acre basis.

Additionally, most aqua-crops will only require a growing period of three to four months reducing the period when cash flow might be an issue.



Finding Knowledgeable Assistance

One of the major drawbacks of working in aquaculture is that the knowledge base is much smaller than that of crops that are more traditional. It's hard when problems arise to find others with the expertise to help.

It's a New Market

But by far the biggest problem for this young industry, certainly for the small farmer, is the lack of market structure.

Most producers have to deal one on one with marketing their own product, all the time working against the clock with a highly perishable commodity that, like fruit, has a very short shelf life.

Threats to Your Stock Power failure is the most ominous risk to an aqua-culturist. Fish can hold their breath about as long as we can!

But a more typical threat to the aqua-harvest, as with other crops, is Mother Nature's unpredictability. Fish and shrimp are cold-blooded animals; consequentially they are complete captives of their environment.

So the number one factor in raising them is temperature.

This matters almost more than anything else does. There are different categories: tropical, warm, cool and cold water and climate dictates the species it's appropriate and possible to raise.

Cold snaps and hot spells can have a devastating effect on the pond life.

Artificial Environments as an Option: Some commercial producers have created artificial environments with recirculation and hydro-technical systems; generally, these approaches require greater experience, as well as more energy and technical setups.

You might liken this sort of set up to life support for the animals--or the Intensive Care Unit for their entire lives!

Ordinarily there are only a few general diseases that apply to fish, usually because of poor care.

Few Predators; But Watch for Stress. Very few outside dangers exist. Wading birds tend not to be able to wade far, raccoons are also thwarted by the pond depth, snapping turtles, whilst a problem, can't eat enough to jeopardize the harvest.

However, in the case of freshwater prawns, they stress very easily, are territorial and turn cannibalistic under duress. Lack of oxygen and a poor pH balance can cause a whole pond of fish to die.

Top

Conservation and Environmental Benefits

Aquaculture probably has the best potential for relieving the pressure on threatened wild populations and allowing the conservation efforts on those populations to succeed.

Aquaculture's ecological footprint is pretty small. Everything has its consequences but compared to wild fisheries, aquaculture is a very low impact enterprise.

A huge issue with wild catch is the "catch". Dolphins are caught in the tuna nets, turtles hauled in with the shrimp, and for every pound of fish caught in the wild, at least five to ten pounds of other fish perish.

Top Portrait of an Aquaculture Farmer

One farmer talks about farming shrimp and one crisis moment

Nat Henton has been a freshwater shrimp farmer for over 12 years.

He started at the age of 17 on the insistence of his grandfather who-- concerned that he was going to turn into a ne'er-do-well teenager--managed to get him interested in the aquaculture program at Kentucky State University.

"Some years we make money, some years we don't," says Nat, who in addition to farming, is a sous-chef at a local



gourmet market that specializes in locally sourced foods.

“The most important thing is pond maintenance” says Nat, “the animals take care of themselves.”

Pond Ph Crisis

One year Nat recalls the Ph balance of the pond getting “out of wack,” causing a critical deficiency of oxygen in the water.

“This was an emergency situation and we had to act to fast,” he says.

The solution? Faced with the possibility of loosing his entire crop Nat says, “We didn’t know what to do so we just ran out to the nearest grocery store and bought 200 lbs of sugar, dumped it in the pond and miraculously that fixed the balance.”

Nat readily admits that he’s not going to get rich shrimp farming, but that he has found a niche market he loves.

Working in the restaurant world has provided him with an immediate market and there is nothing he enjoys more than taking his young daughter with him strolling down to the pond in the early morning or late afternoon to check on his crop and feed the shrimp.

Top

About the Author: Kate Savage is a Lexington, Ky., professional caterer and freelance writer.

Author’s Note: My sincere thanks to Nat Henton and Dr Jim Tidwell of Kentucky State, Professor/Chair of Division of Aquaculture for taking the time to share their knowledge, enthusiasm and love of aquaculture.