Backyard tilapia farming: Manual for simple Mozambique tilapia ponds in Solomon Islands

CGIAR
RESEARCH PROGRAM ON
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BACKYARD TILAPIA FARMING: MANUAL FOR SIMPLE MOZAMBIQUE TILAPIA PONDS IN SOLOMON ISLANDS

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This manual is based on participatory action research under an Australian Centre for International Agricultural Research (ACIAR) funded project '*Developing Inland Aquaculture in Solomon Islands FIS/2010/05*' implemented by WorldFish in partnership with the Solomon Islands Ministry of Fisheries and Marine Resources (MFMR) and the Secretariat of the Pacific Community (SPC).

BASIC INFORMATION ON MOZAMBIQUE TILAPIA

The local tilapia found in Solomon Islands is Mozambique tilapia known scientifically as *Oreochromis mossambicus*. There are no other types of tilapia found in Solomon Islands other than Mozambique tilapia. In the 1950s Mozambique tilapia was introduced from Asia into Solomon Islands and other Pacific Island countries. It has since found its way into creeks, lakes, rivers and small backyard ponds.

Mozambique tilapia are good fish to farm as they are strong, able to survive in poor water conditions, eat a wide range of food and reproduce easily (meaning if you put few tilapia in your pond, after a short time they will start producing babies easily). In some parts of the world tilapia are now so commonly grown in backyard ponds that they have earned the title "**the aquatic chicken**".

In Solomon Islands people are now farming tilapia because it provides fish for their family to eat and money once they sell their tilapia. Backyard tilapia ponds are fairly simple requiring very little equipment and have few other needs, so it is an easy way of providing cheap and available fish for the family to eat. Having a pond is a good way for farmers to gain the knowledge and skills they need on how to farm fish and manage their fish pond. More information on how to: choose the best site to dig your pond, put fish into your pond, manage your pond and harvest your fish is outlined in this manual. These activities can be done by anyone who is interested in farming tilapia.

HOW TO START YOUR BACKYARD TILAPIA POND

A good place to set up your pond should have the following features:

- A good water source (very important)
- Be close to the farmer's house (highly recommended)
- Be in an area where there is no flooding and no people stealing
- Good soil that can hold water for a long period of time (like clay soil)

Step 1: start with measuring and building your backyard pond

a) The size (how long and wide) of your pond depends on your own choice. Only the depth of the pond (how deep) should be a standard measurement. The best depth is 0.8 m deep at one end and 1.2 m deep at the other end, as shown in the diagram below.

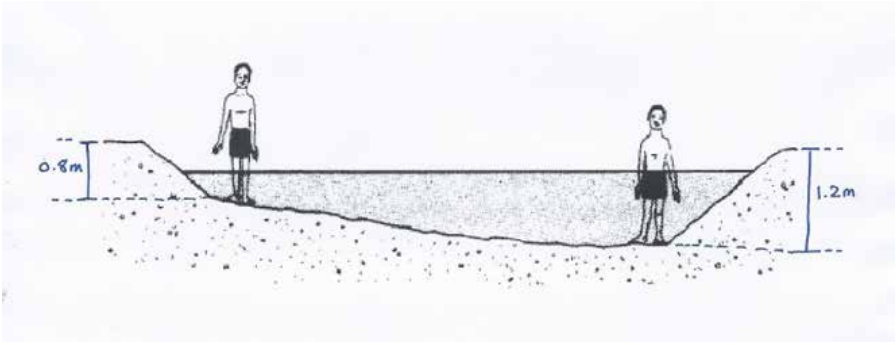
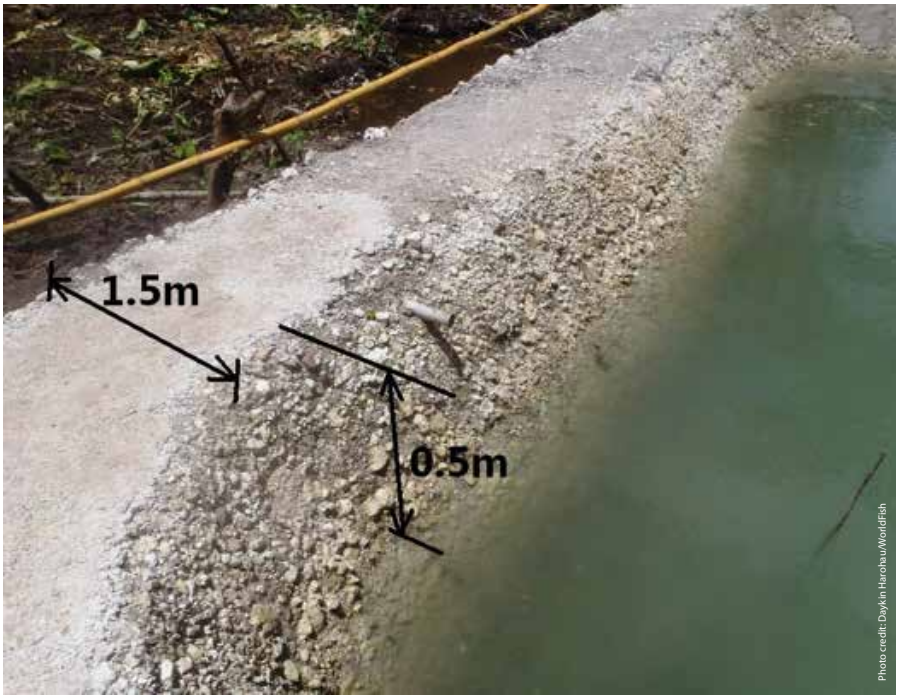


Image from: Murnyak, D and Murnyak, M. 1990. Raising fish in ponds: a farmer's guide to Tilapia culture. Evangelical Lutheran Church of Tanzania. 75p.

b) Make sure to build a proper dyke around your pond.



c) Build your water inlet using bamboo or create a small drain towards your pond from your source of water.

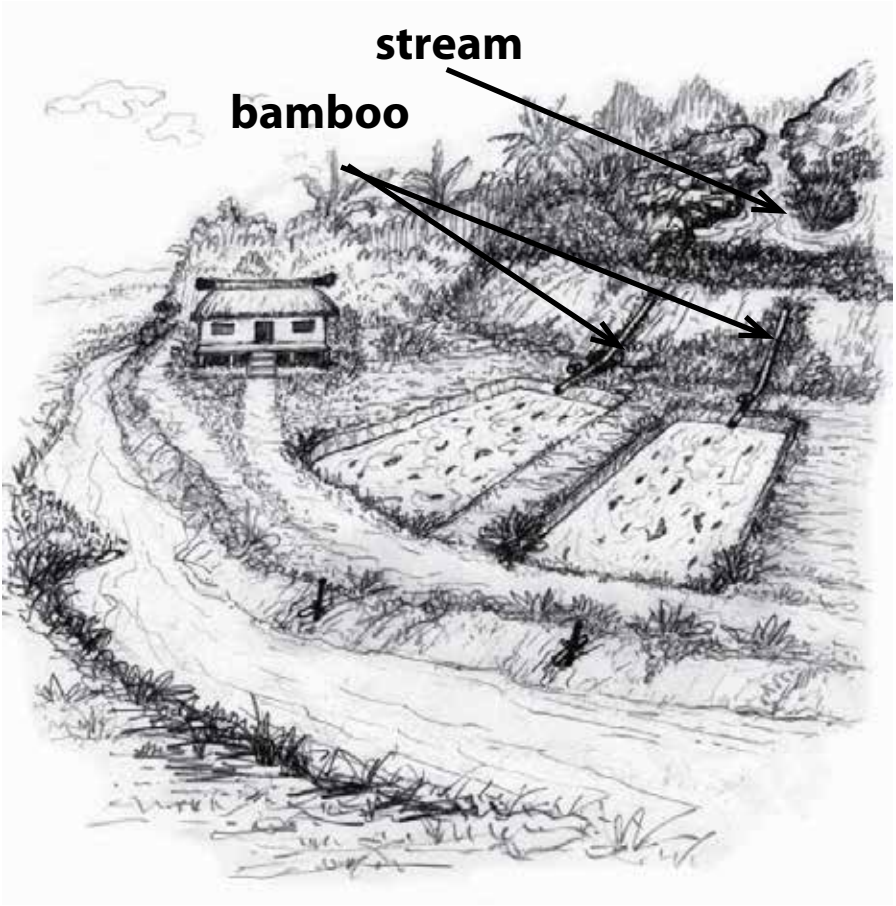


Image from: Nandlal, S., and Pickering, T. 2004. Tilapia fish farming in Pacific Island countries. Volume 2. Tilapia grow-out in ponds. New Caledonia: Secretariat of the Pacific Community.

What your backyard pond should look like

Step 2: Preparing your pond for your tilapia

a) After digging and constructing your pond, you are now ready to fill your pond with water.

b) When the water level in your pond is between 0.5m to 1m deep, stop filling by closing your water inlet. Leave the pond for two days. After two days, put bags of animal manure (pig, chicken or cow) into your pond and leave for one week.

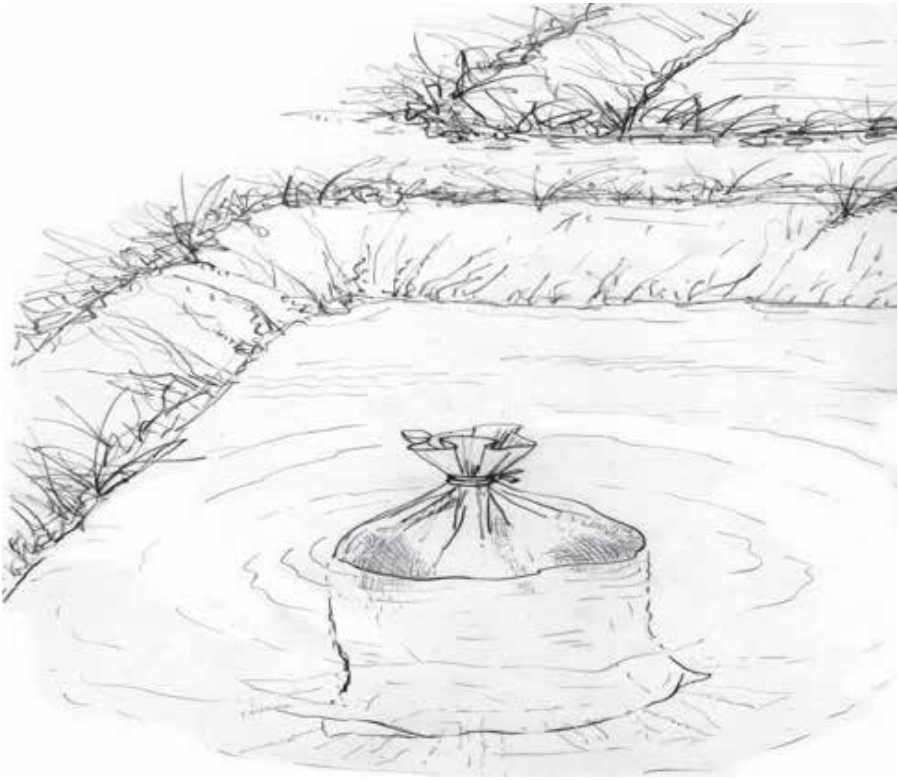


Image from: Nandlal, S., and Pickering, T. 2004. Tilapia fish farming in Pacific Island countries. Volume 2. Tilapia grow-out in ponds. New Caledonia: Secretariat of the Pacific Community.

c) Check your pond after one or two weeks to see if the water in your pond has turned green. If your pond is green (like in the picture), then you can put your fish inside. The green color comes from green algae (*lumluma, lapa*) that grow in the pond, because of the manure and good sunlight.

d) Put the right number of tilapia into your pond. Too many fish in a small pond is not good because when the fish grow big there will be no space and they will fight for food and space. It is good to put about ten tilapia or less, into a one meter square area of your pond (10 fish/m^2).

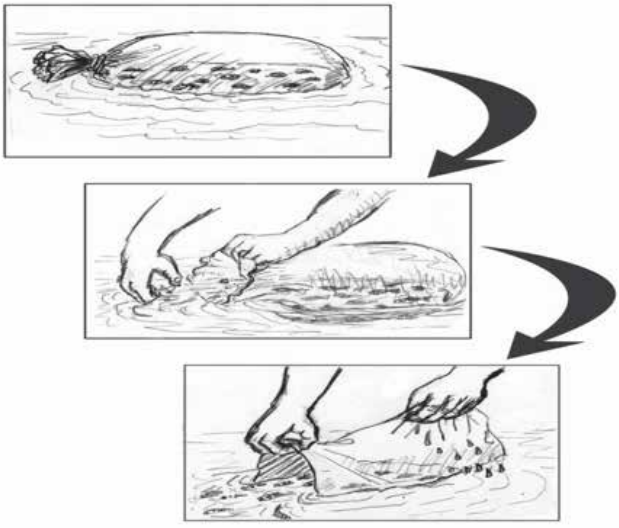
A simple calculation to know how many fish to put into your pond is:

Calculate the size, or area of your pond:
length x width= area of pond

Example: if your pond is 7m long and 6m wide
Then: 7m x 6m= 42m^2
Therefore: 10 fish/m2 x 42m^2 = 420 fish to put in the pond

If you cannot find many fish to start with, then just put in how many you can find or access from another farmer. They will start reproducing soon, maybe after three months, so if you want to produce good sized fish, it is best to make sure your ponds don't get overcrowded so they can have enough food and space.

How you can transfer fish into your pond using a plastic bag or small plastic bucket



e) Once you have fish in your pond, you can start feeding them with any local food you have, like grated coconut leftovers, termites, grated cassava and any left-over food from your kitchen.You should feed your fish two times (2x) in one day or three times (3x) in one day. It is best you feed your fish at one area/spot of your pond so the fish know this area every time you feed and you can also see how your fish are eating. If you are not feeding your fish often, then try and keep the pond water green. The green colour provides natural food for the fish when you are not feeding them.

Image from: Nandlal, S., and Pickering, T. 2004. Tilapia fish farming in Pacific Island countries. Volume 2. Tilapia grow-out in ponds. New Caledonia: Secretariat of the Pacific Community.

If you are feeding your fish with left-over food from the house it is good to use a **table plate** or **small dish** (bowl) every time you feed so that you will know how much food you are giving to your fish.

table plate

small dish

TO HAVE GOOD FISH PRODUCTION FROM YOUR POND

If you want to grow good sized fish (big sized fish and many!) and have a good harvest after a few months, it is best you try and work on some of the following practices.

1. Always make your pond green (try and maintain the growth of *green algae*)

Not Green Enough **Good Green** **Too Green**

2. Always make sure the level of water in your pond is between 0.5m to 1m to allow good space for your fish.
3. Always provide **extra** local food for your fish (e.g. termites, waste food from your house, etc.).
4. Make sure there is good space in your pond for your fish. Do not have too many fish in your pond (over crowded) because this will cause your fish to grow slowly as they will fight for food. **REMEMBER** to follow the simple rule: **10 fish in a 1 meter area of the pond (10 fish/m^2).**
5. Finally you have to eat or sell your fish too! It is good to harvest the big fish from your ponds after four months. This is after they have babies/small fish so you will still have many small fish to grow in your pond.

It is important to harvest your tilapia as this will allow more space in your pond and allow the small fish to grow faster and bigger. If you do not harvest then you will always have many small fish, because the bigger ones will eat all the food. The small fish will not have a chance to grow.

ADDITIONAL INFORMATION FOR FARMERS

Identifying the different sexes of tilapia

Below is a picture/diagram showing how you can find which tilapia is male (man) and which is female (girl). Female (girl) tilapia (shown on the right) has **three small openings** or **holes** close to the anal fin (underside the fish) while the male (man) tilapia has only **two small openings** or **holes**.

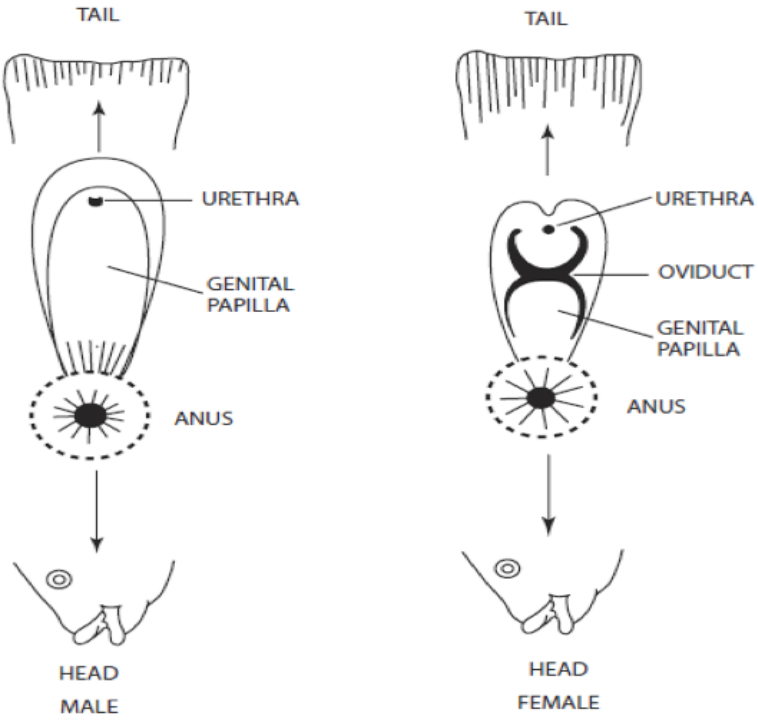


Image from: Nandlal, S., and Pickering, T. 2004. Tilapia fish farming in Pacific Island countries. Volume 1. Tilapia hatchery operation. New Caledonia: Secretariat of the Pacific Community.

Photo credit: Daykin Hanohau/WorldFish

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