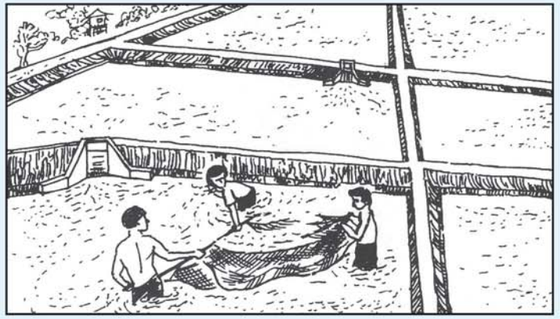
Maintenance of Tilapia Broodstock

To keep the good quality of the tilapia broodstock, strictly observe two important procedures: (1) do not allow any other tilapia (strain or species) to mix with or contaminate your stocks, and (2) continuously select for faster-growing fish from your stocks.

Your original broodfish with an approximate ratio of one male to one female will be continuously producing fry in the breeding pond. The fry produced can be collected and further reared in nursery ponds or net cages. Fingerlings can also be harvested from the breeding pond itself by means of a catching net or seine for dispersal as potential broodfish for other cooperators three months from stocking of the original fish and every month thereafter.



In addition to chicken manure, feeding supplemental feeds like fine rice bran at 4% of the fish's body weight daily will provide sufficient nutrition for the broodfish. If a total of 450 broodfish is in the pond with an average weight of 50 g, the amount of rice bran to be given per day in two feedings (morning and afternoon) is about 1 kg.

Source:

Philippine Council for Aquatic and Marine Research and Development. Pond construction and maintenance for tilapia breeding. *PCAMRD Currents*, 3(2): 8p, August 1998.

PCAARRD Information Bulletin No. 17/2012

For more information, please contact:

PCAARRD
Los Baños, Laguna
Tel. Nos.: (049) 536-0015 to 20; 536-5907
Fax Nos. (049) 536-0016/536-7922
Email: pcarrd@pcarrd.dost.gov.ph
Website: http://www.pcarrd.dost.gov.ph

DEPARTMENT OF TRADE & INDUSTRY
BUREAU OF MICRO, SMALL AND MEDIUM ENTERPRISE DEVELOPMENT (BMSMED)
5/F, Trade and Industry Building
361 Sen. Gil J. Puyat Ave. Makati City
Trunkline No.: 751.0384
Tel. Nos.: (02) 897.1693 / 897.7596 / 890.4968
Fax No.: (02) 896.7916 • Email: bmsmed@dti.gov.ph
www.dti.gov.ph

Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD)
Department of Science and Technology (DOST)

Pond Construction and Maintenance for Tilapia Breeding and Growout

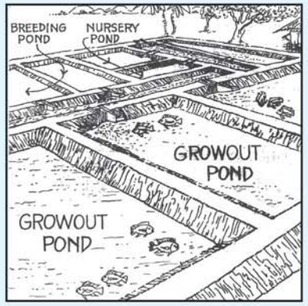
Overview

The fishpond is a regular fixture in the Philippine rural setting and perhaps, second only to the ricefield in terms of providing livelihood and income for farmers.

Fishponds or earthen ponds are found in almost all parts of the country and are used in the breeding, nursery, and growout of various foodfishes. These earthen structures serve as an important factor in the increased production of the country's most important cultured freshwater fish, the tilapia.

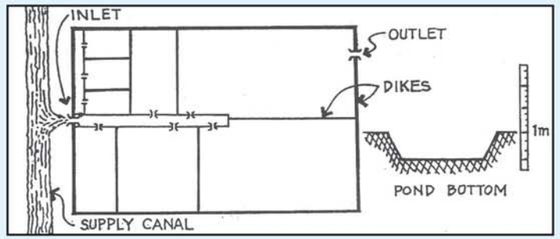
Pond Construction

What is a fishpond? A fishpond is an excavated or elevated earthen structure for containing water to be used in fish breeding, nursery, and growout.



Where are fishponds built? Fishponds are built in areas with good water supply and soil. Areas that are too sandy, rocky, and flood-prone should be avoided. Fishponds that are near the farmer's residences are preferred.

How is a fishpond built? Fishponds are usually rectangular in shape with water depths of 0.5–1 meter (m). They can be excavated manually or constructed using heavy equipment. The parts of a fishpond are its dikes or walls, bottom, and water management structures (outlet and inlet).



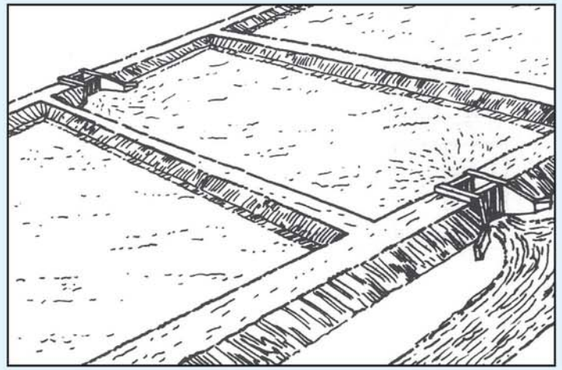
Maintenance of a Fishpond

Prior to fish stocking, the bottom is leveled with a slope towards the outlet. Water coming from a clean and reliable source is then allowed to fill the pond to the desired depth (0.5–1 m).

The dikes of a new pond have a tendency to slump and easily erode because soil becomes loose. With time, the original height may decrease by 20–30%.

Water loss through seepage may be experienced in new ponds. The water loss will become less as the ponds age.

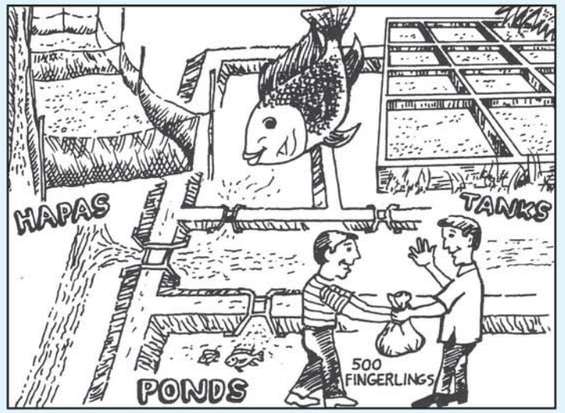
Entry of wild fish into the pond should be prevented by providing the water inlet with screen. Growth of weeds within the ponds should be controlled.



Tilapia Breeding and Broodstock Management

Pond Breeding of Tilapia

The Nile tilapia can be bred in ponds, tanks, and hapas. A minimum of 200 square meter (m^2) of pond area is recommended. The fingerlings should be stocked in the prepared pond as soon as possible. Proper acclimation of the fish in the pond is done by placing the plastic bag with oxygen in the water



for about 10–15 minutes before opening it to release the fish. Water from the pond is slowly admitted into the bag as it is tilted to allow the fish to swim out.

The fingerlings are reared for a period of 2–3 months to grow them to broodfish size of 40–50 grams (g) each with good management. Fertilization with dried chicken manure placed in a sack can be applied at the rate of 50 kilos (kg) every month in the 200-m^2 pond. For effective spread, the manure can be divided into two bags placed under water at opposite ends of the ponds. The manure will provide nutrients that will stimulate plankton growth which the fish will feed on. The greenish color of the water is a sign that natural food of the fish is present.

No other fish should be present in the pond when the tilapia fingerlings are placed. This is to prevent the contamination of your broodstock and to avoid the loss of fish due to predators like mudfish and catfish. The water supply of the pond should be checked at least once a day to make sure that the proper water level is maintained and that no "wild fish" comes in.

Breeding of Tilapia

The Nile tilapia is ready to breed at 3–4 months of age. The male fish grows faster than the female. Nests are built by the males on the pond bottom. The nests look like circular potholes. Females, on the other hand, produce the eggs that are fertilized by males and then mouthbrooded by the females. Fry swim out of the female's mouth to the water surface in schools after about ten days from hatching.

Mature female tilapia can spawn as often as once a month. The number of fry that a female can produce depends on its size. This number can range from 100 to 1,000.

The male tilapia can spawn with more than one female during the breeding period. Spawning of tilapia in ponds can be active as long as water temperature is favorable (above 24°C) and other factors as optimum density, nutrition, and water quality are maintained.

The sexes of adult tilapia can be differentiated by physically examining the urogenital papilla—a finger-like structure located behind the anus of the fish. There are two openings in the structure of the female and only one in that of the male.