

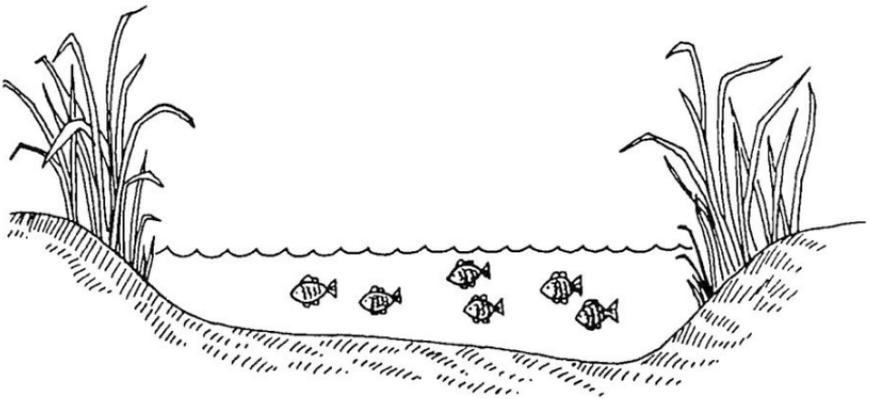
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Introduction

What is Fish Culture?

Fish culture is the growing of fish in ponds. Growing fish in ponds, from which they cannot escape, allows feeding, breeding, growing, and harvesting the fish in a well-planned way.

Fish culture is one form of aquaculture. Aquaculture is the science which deals with methods of growing (cultivating) animal and vegetable life in water. Some other kinds of aquaculture are concerned with growing frogs, oysters, seaweed, and even rice.



History of Fish Culture in Ponds

Growing fish in ponds is a very old practice. Carp were cultured as long ago as 2698 B.C. in China, where they were grown in ponds on silkworm farms. Fish culture seemed to

occur whenever civilization was settled for a long period of time. For example, fish culture was done in ancient Egypt and in China, which has had a continuous civilization for over 4,000 years. The first written account of fish culture in ponds was by Fan Lai, a Chinese fish farmer, in 475 B.C.

The ancient Romans introduced carp from Asia into Greece and Italy. By the seventeenth century (1600's), carp culture was being done all over Europe. A book written in England in 1600 by John Taverner gives the details of good pond management and talks about growing the common carp. Taverner also wrote about pond construction, fertilization and feeding. Another book, written in 1865, gave the details of the stripping methods of spawning fish. The methods of culturing common carp have not changed very much since that time.

The common carp is still a very important pond fish. In addition, today, other fish also are being cultured in ponds. Some of the most well-known are fish of the tilapia genus, like *Tilapia nilotica* and *Tilapia mossambica*. Some of the other Chinese carps -- the silver, grass, and big head carps -- also are often used in pond culture. Most importantly, countries all over the world are using time and money to discover which of the fish commonly found in their own waters will grow well in fish ponds.

Why Fish are Grown in Ponds

The practice of culturing fish in ponds developed because growing fish in ponds is a more useful practice, for some purposes, than trying to catch fish from lakes, rivers, or streams. For example:

- Many interested people discover that building a fish pond close to home is possible and far more convenient than going to the nearest market or river. Ponds can be built wherever the soil, shape of the land, and water supply are right. This may sound as if a lot of factors are involved. But since a wide variety of soils, land shapes, and water supplies can be used for pond culture, a fish pond can even be made from a rice paddy or an unused grain field.

- It is easier to get fish out of a pond than it is to catch a fish from a river or stream. Also, the number of fish taken out of a pond can be controlled. But it is very difficult to know how many fish can be caught in a river or stream or lake at any one time. When the farmer goes to his fish pond to get dinner, he knows he can take out the number of fish he needs --quickly and easily.
- Fish growth can be controlled. The fish can be fed extra food to make them better for market; natural enemies can be kept from killing the fish. For a person who relies on fish for his food or his income, these are important factors.
- The only fish grown in a pond are the ones the farmer wants to grow. When he takes a fish out of his-pond, the farmer knows what kind or kinds he will be getting. When he catches fish in a lake, stream, or river, many of the fish will not be the ones that are good to eat or to sell.
- Growing fish in ponds allows the farmer, or other fish grower, to produce fish cheaply, and to have a supply of fish available on his own land. Fish in ponds belong to the pond owners; fish in the rivers and lakes do not.



Why Growing Fish is Important

There are some very good reasons why a farmer or small land owner might be interested in fish farming:

- Fish are an important food source.
- Fish farming can help a farmer make the best use of his land.
- Fish farming can provide extra income.

There may be additional reasons; you and the pond owners can determine these from the local situation. The three points listed above are very broad, however, and apply, at least in part, to most situations. Therefore, each point is discussed more fully below.

FISH AS FOOD Farmers know that all living things need food, and that without food, living things die. However, they are not as likely to know the characteristics of food which make it valuable (or not) to the body.

Food is important because it provides proteins, vitamins, minerals, fats, and carbohydrates. These things are called nutrients: they are materials that the body must have to live and grow. Every kind of food has different amounts of each of these nutrients. For example, some foods contain more protein; others have more fat than protein.



Because foods contain different amounts of proteins, fats, and carbohydrates, for example, it is necessary to eat a number

of different kinds of food to get the right amounts of each nutrient. All the foods together then give the body what it needs to grow.

The food that people eat is called their diet. Eating the right kinds of food --foods that give the body the right amounts of proteins, fats, etc. --is called eating a balanced diet. People who eat a balanced diet usually are healthy and strong; people who do not eat the right kinds of food are more likely to be weak and get sick.

Proteins are the most important part of food. Protein is made of carbon, hydrogen, and nitrogen. These are called elements. The combinations of elements in protein make it the most useful nutrient. Foods that contain a lot of protein are especially good for people to eat. And fish contains a lot of protein.

The table on the opposite page shows a list of foods that humans eat. The first number beside the food shows the number of grams of protein in the food when it is fresh. The second number tells how many grams of protein there are in food which has been dried. The table shows that fish --whether fresh or dried -- is a very good source of protein. (100 gm of dried fish contains more protein than 100 gm of fresh fish only because dried foods have water taken out. Therefore, 100 gm of fresh fish weighs less when it is dried).



If the farmers in your area already eat a lot of fish, or like fish, fish farming for food may not be hard to introduce and have accepted. If they do not eat fish often, you will have to