STRONG TOWER ACADEMY

JSS 2 AGRICULTURAL SCIENCE

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ESTABLISHMENT OF FISH POND

A fish pond is a controlled water body (pond), artificial lake, or reservoir that is stocked with live fish and is used for recreational fishing or for ornamental purposes.

CONDITIONS NECESSARY FOR SITING A FISH POND

1. **Location of the market**: There should be a fish market near-by to allow for high capacity of sale of fish from pond harvests. The market requirement is the first requirement for locating a fish farm. This will further help address issues relating to transportation of the fish to the market.
2. **Availability of water**: water could be obtained from boreholes, streams or lakes. Gravity flow water is cheapest and best source. The water must be unpolluted, uncontaminated.
3. **Topography**: Areas with large shallow water should be avoided because they become too shallow to use during the dry season. Pond should be constructed where enough water can be impounded with the least amount of earth fill.
4. **Nature of Soil**: Soil with enough clay content to hold water. Clay and silty clays are excellent soils for holding water because they stop water from seeping through[i]. Clay should make up at least 20-25% of the soil
5. **Size and location**: The projected land for fish pond construction should be relatively level. Steeply sloped land is not suitable for building ponds. A farmer should determine an area large enough for the present plans and for any future expansion. Such an area should not be prone to flooding. The selected area should not be subject to pollution in runoff from adjacent land. If possible, the land must be slightly lower than the water source, so that the ponds can be filled by gravity rather than by pumping.
6. **Availability of labour**
7. **Vegetation of the place**

TYPES OF POND

1. EARTHEN POND

This involves digging the soil usually clay (25 %clay) to a depth. Pond can be of any shape as long as it is well constructed. However rectangular or square shapes are considered the best. This is usually practicable in swamping environment. This rules away the problem of water maintenance as there is natural flow in and out of water in the pond

Steps involved in earthen pond construction

The following steps are required:

• Clearing of proposed site

• Setting-out which involves pegging and lining with the rope

• Mark-out the areas inlet and outlet
• Topsoil removal and storage
• Construction of embankment
• Construction of inlet drainage pipes/ water control structures
• Construction of screen at both inlet and outlet.

TYPES OF EARTHEN PONDS

(i) Excavated Pond

An excavated pond is often built on level terrain and its depth is achieved solely by excavation. An excavated pond is relatively safe from flood damage, is low maintenance and can be built to expose a minimum water surface area in relation to volume. This is beneficial in areas of high evaporation losses and a limited amount of water supply. Ponds should have gentle slopes on dikes as depicted in the pictures below:

(ii) Embankment Pond

This type of pond is built by creating an embankment or dam used to impound water and is usually constructed in a valley or on gently sloping land. It is not recommended to build an embankment pond on greater than a 4% slope. Less excavation may be needed to build this type of pond. This is shown in the picture below:

2. CONCRETE POND

Here, blocks are used to construct the pond above the ground level, using cement, sand and gravel with water. The pond floor should be well concreted to a thickness between 7.5cm- 10cm. Water tap should be well connected to allow free flow of water in and out of the pond.


3. PLASTIC POND

Pond construction is expensive and this has led many fish farmers in Nigeria to build concrete tanks or to buy plastic tanks as production units. These are smaller units but are believed to be easier to manage as production units. Nigerian farmers have limited land, and tank fish farming adapts well to their conditions than larger, more expensive earthen ponds. It is also noted that the quantity of fish harvested from such smaller production units is more easily marketed than harvests from large fish ponds. There are different shapes and sizes of tanks used, as shown below:


Other types of fish pond are **METAL TYPE, GLASS TYPE** and **the WOODEN TYPE** (e. g.STA fish pond)

Establishment of a Fish Pond

To establish a fish pond, certain operations must be carried out. These include:

Site selection: the best land with clay soil should be chosen, in order to prevent high porousity and water seepage. The site should be in a fairly open area.

Land survey: the height and volume of earth to be used for dyke and total water surface area should be determined.

Clearing and stumping of site: cutting of bush and removal of stumps should be carried out. This helps to remove the trash from the site.

Construction of dam: clay soil should be used with quality building materials. This is because of the ability of clay soil to hold water.

Construction of core trench: this involves the removal/digging of soil (excavation). The position should be at right angle to the dam which can be made with consolidated stones or cemented walls.

Construction of spillway: this is positioned at one end of the dam. Wood and wired meshed screen should be used to construct the spillway.

Impoundment of pond: this is the filling of pond with water by opening the monk board of the reservoir. This leads to the release and flow of water to fill the pond.

Pond fertilization: this involves the addition of fertilizers to encourage the growth of micro flora (planktons). This is done by pouring organic fertilizers e.g. poultry droppings, cow dung, or use of inorganic fertilizers like N.P.K or superphosphate. This should be carried out 15 days before stocking the pond.

Pond Inoculation: this is the introduction of proper plankton species into the pond by pouring water from a plankton-rich pond into the newly fertilized pond. The water turns green after a while, indicating the abundance of planktons. To keep the pond green, fertilizer is added into the pond weekly.

ASSIGNMENT

Write short notes on each of the following fishing equipment:

- Set net
- Drag net
- Cast net
- Gill net
- Fishing trawl/Trawler
- Hook and line