

# FARM PRODUCTION - AQUACULTURE

## Establishment of Fish Farm-Guidelines

Following parameters are considered while determining the suitability of the site for fish culture.

- **Site Selection**

Special consideration should be given to the location. It should be located in an area that is not subject to frequent flooding and should have enough elevation, so that farm can be drained out in case of any emergency, should have suitable texture, enough water supply, availability of required inputs, have market road access even during the rainy season.

- **Soil sampling**

To determine suitability of the site for fish culture, soil samples should be taken from the proposed site. They should be from surface and from slightly below the depth that will represent bottom of the pond, i.e. if three feet of soil was anticipated to be excavated, the soil samples should be taken from between three and four feet depth.

A soil sample is taken by drilling a soil auger into the desired depth. The soil in the head of the auger is then placed in a plastic bag and taken to the departmental laboratory for analysis. The bag should be labeled with the farm name, the location and the depth at which the soil sample was taken.

- **Water Quality**

In most areas of the Punjab province water source is either from a tubewell or irrigation canal. The quality of the tubewell water should be analyzed. For this purpose a sample should be taken preferably in a sealed bottle and sent to the Department of Fisheries Laboratory for the testing of total alkalinity, hardness, pH, nitrogen, total dissolved solids alongwith other required parameters.

- **Farm Designing**

A production pond/grow-out pond should be one acre to 2.5 acre area with the length – breadth ratio of 2:1 whereas the size of nursery pond should be at least ½ acre and nursery area should be 1/8<sup>th</sup> of the total production area of fish farming project.

Each production and nursery pond should have an independent inflow as well as outflow water structures to regulate the water level in the pond.

- **Manuring / Fertilization**

In a new pond bottom should be manured prior to water filling with 5,000 to 6,000 Kgs organic manure per acre. Cowdung or poultry waste is the most desirable manure. Similar quantity is required to be added periodically in subsequent stages to maintain productivity of the pond throughout the growth period i.e. from March to October.

In addition, fertilizers are also applied during the growth period on fortnightly basis to maintain the productivity of the farm.

Different fertilizers require different application procedures. Manures should be evenly spread in the pond whereas fertilizers should be dissolved in the water and then spread on the surface of pond water in a uniform way.

- **Stocking Densities**

- **Criteria for the stocking of a fish farm**

- Stocking be managed according to the carrying capacity.
    - Stocking be executed according to the required ultimate weight of individual fish (at the time of harvest) and the optimum space/room required/kg fish.
    - Stocking of fish seed be arranged taking into consideration its potential growth rate under different aquaculture management systems.

- **Recommended Species with Percentage of stocking**

<b><u>Name of the Fish Species</u></b>	<b><u>Relative Ratio</u></b>
<i>Indigenous</i>	
Thaila ( <i>Catla catla</i> )	10-20 %
Rohu ( <i>Labeo rohita</i> )	30-35 %
Mrigal ( <i>Cirrhinus mrigala</i> )	10-15 %
<i>Exotic</i>	
Grass Carp ( <i>Ctenopharyngodon idella</i> )	15-20 %
Silver Carp ( <i>Hypophthalmichthys molitrix</i> )	15-20 %

- **Farm Management Calendar**

<b><u>Month</u></b>	<b><u>Grow-out Pond</u></b>	<b><u>Nursing Pond</u></b>
January	Dry pond	Maintain water at required level
February	Dry pond to cracking	Maintain water at required level
March	Plough the pond bottom until smooth Spread organic manure evenly on bottom Fill the pond with water Add inorganic fertilizers (dissolve, disperse evenly.)	Maintain water at required level  Prepare for harvest of advanced fingerlings
April	Transfer advanced fingerlings from the nursery pond to the grow-out pond Maintain water at required level Apply fertilizers at the required level	  Drain, dry pond
May	Maintain water at required level Apply fertilizers at the required level	Dry bottom to cracking Plough the pond
June	Monitor growth on monthly basis Maintain water at required level  Apply fertilizers at the required level Monitor growth	Plough the pond until the bed is smooth Spread organic manure evenly on bottom Fill the pond with water Add inorganic fertilizer dissolved and dispersed evenly Maintain water at required level Stock with fingerlings of Silver, Grass Carps
July	Maintain water at required level Apply fertilizers at the required level	Maintain water at required level Apply fertilizers at the required level

	Monitor growth	Monitor growth
		Stock with fry of Rohu, Mori, Thaila
August	Maintain water at required level Apply fertilizers at the required level	Maintain water at required level Apply fertilizers at the required level
	Monitor growth	Monitor growth
September	Maintain water at required level Apply fertilizers at the required level	Maintain water at required level Apply fertilizers at the required level
	Monitor growth	Monitor growth
October	Maintain water at required level Apply fertilizers at the required level	Maintain water at required level Apply fertilizers at the required level
	Monitor growth	Monitor growth
November	Maintain water at required level Initial harvest of fish by net, to market	Maintain water at required level
December	Harvest by draining entire pond for marketing Drain, dry pond	Maintain water at required level